Issued April 1967

SOIL SURVEY
GRENADA COUNTY
Mississippi

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

Major fieldwork for this soil survey was done in the period 1957–64. Soil names and descriptions were approved in 1965. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1965. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural Experiment Station as part of the technical assistance furnished to the Grenada County Soil Conservation District.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY of Grenada County, Miss., contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in appraising the value of tracts of land for agriculture or industry.

Locating Soils

All the soils of Grenada County are shown on the detailed map at the back of this report. This map consists of many sheets that are made from aerial photographs. Each sheet is numbered to correspond with numbers shown on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbol. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to assist the reader in finding information in the report. This guide lists all of the soils of the county in alphabetic order by map symbol. It shows the page where each kind of soil is described, and also the page for the capability unit and the woodland suitability group.

Individual colored maps showing the relative suitability or limitations of soils for many specific purposes can be developed by using the soil map and information in the text. Interpretations not included in the text can be developed by grouping the soils according to their suitability or limitations for a particular use. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils in the soil descriptions and in the discussions of the capability units and woodland suitability groups.

Foresters and others can refer to the section "Use of Soils as Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others concerned with wildlife will find information about soils and wildlife in the section "Use of Soils for Wildlife and Fish."

Community planners and others concerned with recreational development can read about the soil properties that affect the choice sites for parks, picnic areas, and other recreational uses in the section "Use of Soils for Recreation."

Engineers and builders will find under "Engineering Uses of Soils" tables that give engineering interpretations for the soils in the county and name soil features that affect engineering practices and structures.

Scientists and others can read about how the soils were formed and how they are classified in the section "Formation, Classification, and Morphology of Soils."

Students, teachers, and others will find information about soils and their management in various parts of the text, depending on their particular interest.

Newcomers in Grenada County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "Additional Facts About the County," which gives additional information about the county.

Cover picture: Cattle grazing bermudagrass and lespedeza in a pasture on Falaya silt loam.

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Contents

NOTICE TO LIBRARIANS

Series year and series number are no longer shown on soil surveys. See explanation on the next page.

Issued April 1967

EXPLANATION

Series Year and Series Number

Series year and number were dropped from all soil surveys sent to the printer after December 31, 1965. Many surveys, however, were then at such advanced stage of printing that it was not feasible to remove series year and number. Consequently, the last issues bearing series year and number will be as follows:

Series 1957, No. 23, Las Vegas and Eldorado Valleys Area, Nev.
Series 1958, No. 34, Grand Traverse County, Mich.
Series 1959, No. 42, Judith Basin Area, Mont.
Series 1960, No. 31, Elbert County, Colo. (Eastern Part)
Series 1961, No. 42, Camden County, N.J.
Series 1962, No. 13, Chicot County, Ark.
Series 1963, No. 1, Tippah County, Miss.

Series numbers will be consecutive in each series year, up to and including the numbers shown in the foregoing list. The soil survey for Tippah County, Miss., will be the last to have a series year and series number.

SOIL SURVEY OF GRENADA COUNTY, MISSISSIPPI

FIELDWORK BY ABRAHAM E. THOMAS AND CHARLES D. BOWEN, SOIL CONSERVATION SERVICE

REPORT BY ABRAHAM E. THOMAS

UNITED STATES DEPARTMENT OF AGRICULTURE IN COOPERATION WITH THE MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

GRENADA COUNTY is located in north-central Mississippi (fig. 1) and has an area of about 433 square miles. By air, Grenada, the county seat, is about 105 miles north of Jackson and about 98 miles south of Memphis, Tenn.

The climate of the county is moist and subtropical. More than half of the average yearly rainfall of 52.3 inches comes in winter and spring. The winters are mild, and the summers are warm and humid.

The county is dominantly agricultural, though industry is increasing. Cotton, corn, and soybeans are the main crops. Most of the soils are acid, low in content of organic matter, and medium or low in natural fertility. The farms are increasing in size and are producing more livestock. More than half of the acreage is in forest.

General Soil Map

The general soil map at the back of this survey shows, in color, the soil associations in Grenada County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea about a county, who want to compare different parts of the county, or who want to know the location of large tracts that are suitable for certain kinds of farming or other land use. Such a map is not suitable for planning the management of a farm or field, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect management.

The twelve soil associations in Grenada County are divided into two groups—soils of the flood plains and soils of the uplands. These groups and the associations in each group are described in the following pages.

Soils of the Flood Plains

Four soil associations are made up of soils of the flood plains. One of these associations is on the alluvial plain

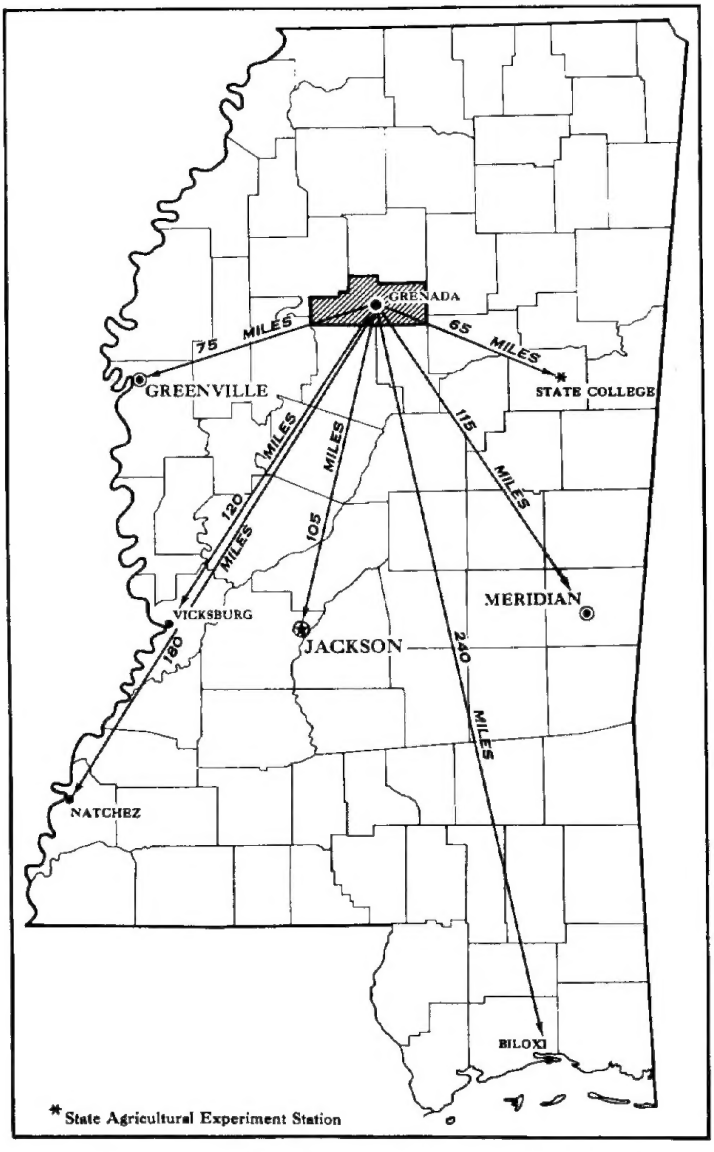

Figure 1.—Location of Grenada County in Mississippi.

of the Mississippi River, two are along the Yalobusha River, one is along the Yalobusha River and other streams, and one is upstream from Grenada Lake.

1. Alligator-Forestdale Association: Poorly drained, fine-textured soils formed in old alluvium from the Mississippi River

This association is a nearly level area in the extreme western part of the county where an old stream once meandered. Water from this stream has been trapped in a few places, and shallow lakes or sloughs have formed. This association covers about 3 percent of the county.

Alligator soils make up about 90 percent of this association, and the poorly drained Forestdale soils, the well-drained Dubbs soils, and other soils make up the rest. All of these soils formed in old alluvium from the Mississippi River.

The Alligator soils are on broad flats and in depressions. These fine-textured, poorly drained soils have a very dark grayish-brown silty clay loam or clay surface layer that is about 4 inches thick and is underlain by gray clay. The poorly drained Forestdale soils and the well-drained Dubbs soils occupy narrow bands adjacent to old stream channels and gently undulating ridges.

This association is suitable for farming, but drainage is needed to remove excess surface water. About 51 percent of the association is wooded, and the rest is open land. Most of the open land is used for cotton, soybeans, small grain, and similar crops. A small amount is used for pasture and hay. The use of this association for residential development is severely limited because the soils shrink and crack open during dry periods and swell when they are wet. Trees and plants that provide food and cover for wildlife grow well. Except for hunting and fishing areas, this association has severe limitations as sites for recreational areas.

2. Waverly-Falaya-Collins Association: Poorly drained to moderately well drained soils formed in recent alluvium from the Yalobusha River

This association is on the alluvial plain of the Yalobusha River. It covers about 4 percent of the county. The Waverly soils make up about 80 percent of the association; the Falaya soils, about 15 percent; and the Collins soils, about 4 percent. These soils formed in silty alluvium.

The Waverly soils are on broad flats and in depressions. These poorly drained soils have a dark grayish-brown silt loam surface layer that is about 4 inches thick. Their subsoil is mainly gray silt loam or silty clay loam. The Falaya soils are in the high areas of this association, and the Collins soils are adjacent to streams. Both the Falaya and the Collins soils have a brown silt loam surface layer. Below a depth of 20 inches, Falaya soils are generally gray and Collins soils are mottled gray and brown.

This association is suitable for farming, but a complete system of drainage is needed to remove excess surface water. About 57 percent of the association is wooded, and the rest is open land. Most of the open areas are used for soybeans, small grain, pasture, and hay. Trees and plants that provide food and cover for wildlife grow well. The use of this association for residential and industrial development is limited because the soils are wet in winter and spring. Except for hunting areas, use for recreational development is severely limited.

3. Falaya-Collins-Waverly Association: Well-drained to poorly drained silty soils formed in recent alluvium from the Yalobusha River and other streams

This association is on the alluvial plain of the Yalobusha River and along other streams of the county. It covers about 17 percent of the county.

The Falaya soils make up about 50 percent of the association; the Collins soils, about 35 percent; and the Waverly soils, about 10 percent. The rest of the association is chiefly well-drained Vicksburg and Cascilla soils, Mixed alluvial land, and Sandy alluvial land. The major soils of this association formed in silty alluvium.

The Falaya soils are on broad, flat bottom lands and are somewhat poorly drained. They have a brown silt loam surface layer but are mainly gray below a depth of 20 inches. The moderately well drained Collins soils lie in bands adjacent to the stream channels. They have a brown surface layer and are mottled with brown and gray below a depth of 20 inches. The Waverly soils are in low areas and are poorly drained. They have a surface layer of dark grayish-brown silt loam that is about 4 inches thick and is underlain by a dominantly gray subsoil.

This association is well suited to farming, and the soils are among the most productive in the county. Drainage is needed, however, to remove excess surface water. About 80 percent of the association is open land, and the rest is forested. The open land is used for cotton, corn, small grain, soybeans, pasture, and hay. Trees and plants that provide food and cover for wildlife grow well. The hazard of occasional flooding limits the use of this association for residential and industrial development. Recreational development, except for hunting areas, is also limited by the flooding.

4. Falaya-Calloway Association: Somewhat poorly drained silty soils subject to flooding from backwaters of Grenada Lake

This association is on the alluvial plain of the Yalobusha River. It is upstream from Grenada Lake and extends eastward to the county line. This association covers about 9 percent of the county.

The Falaya soils make up about 40 percent of this association; the Calloway soils, about 25 percent; the Collins, Waverly, and Henry soils, each about 10 percent; and the Grenada soils about 5 percent. The Falaya, Collins, and Waverly soils formed in recent alluvium, and the Calloway, Henry, and Grenada soils formed in loess.

The Falaya soils are somewhat poorly drained. They have a brown surface layer and are mainly gray below a depth of about 20 inches. The Calloway soils are on nearly level ridges. They are somewhat poorly drained and have a fragipan at a depth of about 16 inches. Calloway soils have a grayish-brown silt loam surface layer and a yellowish-brown silt loam or silty clay loam subsoil that is mottled with gray.

The moderately well drained Collins soils have a brown surface layer and are mottled with gray and brown below a depth of about 20 inches. The Waverly soils are poorly drained and are mainly gray below a depth of about 6 inches. The poorly drained Henry soils have a grayish-brown silt loam surface layer and a gray silt

loam or silty clay loam subsoil. The Henry soils have a fragipan at a depth of less than 1 foot. The Grenada soils are on gently sloping ridges. These moderately well drained soils have a brown silt loam surface layer, a strong-brown silt loam subsoil, and a fragipan at a depth of about 22 inches.

This association is in the Grenada Reservoir area, and a large part of it is covered by backwater for several months each year when Grenada Lake is at flood stage. A small acreage in the higher areas is leased and is farmed after the water recedes. The main crops are pasture, hay, and small grain. This association is of limited use for farming and for residential or industrial development. Plants that provide food and cover for wildlife grow well, but the high water in spring forces most of the wildlife out of the area and into the adjoining hills. The association is excellent for fishing when the water is high early in spring and during the spawning season. It is also suitable for development as a refuge for waterfowl and as a shooting area.

Soils of the Uplands

Eight associations in the county are made up of nearly level to very steep soils on uplands. These soils are scattered through all parts of the county except the extreme western part.

5. Grenada-Calloway Association: Silty soils that have a fragipan and border flood plains mainly of the Yalobusha River

This association is on nearly level to sloping uplands that border flood plains mainly along the Yalobusha River and also along Bogue Creek. These uplands have broad nearly level and gently sloping ridgetops and moderately sloping side slopes. Drainageways and intermittent streams that have narrow bottoms run through the area. This association covers about 8 percent of the county.

The Grenada soils make up about 50 percent of this association, and the Calloway soils make up about 30 percent. Memphis, Henry, Collins, and Falaya soils account for the rest. The major soils of this association formed in loess.

The Grenada soils are nearly level or gently sloping and are on the tops and sides of ridges. These moderately well drained soils have a grayish-brown silt loam surface layer and a yellowish-brown silt loam subsoil. They have a fragipan that begins at a depth of about 22 inches and extends to 4 feet or more. The somewhat poorly drained Calloway soils are on nearly level or gently sloping ridgetops. These soils have a grayish-brown silt loam surface layer and a yellowish-brown silt loam subsoil. Their fragipan is at a depth of 16 inches and is several feet thick in most places.

Memphis soils, which are well drained, are in small, nearly level to sloping areas of tableland that are covered with loess about 12 to 20 feet thick. The main areas of these soils extend from the vicinity of Dubard westward along State Route 7 to the blufflike hills. The poorly drained Henry soils are on flat uplands, and the Collins and Falaya soils are on narrow bottoms. These soils are along or near streams in this association.

This association is suitable for farming. Most of the farms are of the general type and produce crops and livestock. The crops commonly grown are cotton, corn, soybeans, small grain, pasture, and hay. Plants that provide food and cover for wildlife also grow well. This association is suitable for residential and industrial development if adequate facilities for sewage disposal are provided. Filter fields for septic tanks function poorly in the Calloway and Grenada soils. Areas in this association can be made into amusement parks, golf courses, tennis courts, skeet and trap ranges, camping sites, hiking trails, and horseback riding trails.

6. Memphis Association: Silty soils on hilly uplands

This association is on hilly uplands that border the alluvial plain of the Mississippi River in the western part of the county. The association is made up of narrow, winding ridgetops and very steep, choppy side slopes. Between the ridges are intermittent streams and numerous short drainageways that have narrow bottoms. This association covers about 6 percent of the county.

The Memphis soils make up about 80 percent of the association, and the Collins and Vicksburg soils make up the rest. The Memphis soils formed in loess.

The Memphis soils are on ridgetops and steep hillsides. These well-drained soils have a brown silt loam surface layer and a dark-brown silty clay loam or silt loam subsoil. The Collins and Vicksburg soils are on narrow bottoms. These soils formed in sediments that recently washed from nearby slopes and are silty to a depth of several feet. They have a brown surface layer. The Collins soils are mottled with gray and brown below a depth of about 20 inches, and the Vicksburg soils are mottled with gray and brown below about 30 inches.

The soils of this association are fertile, but many areas are too steep for cultivation. Most of the cleared areas are on ridgetops and narrow bottoms. These areas are used for cotton, corn, small grain, pasture, hay, and other general crops. The hillsides are mostly forested. Trees and plants that provide food and cover for wildlife grow well. This association is too hilly to be used for recreational development other than as areas for hunting, hiking, and horseback riding.

7. Memphis-Guin Association: Silty and gravelly soils on hilly uplands

Very steep hills and narrow, winding ridgetops make up this association. The ridgetops have very steep, choppy sides that are dissected by numerous short drainageways. This association is near the Delta of the Mississippi River in the western part of the county. It covers about 3 percent of the county.

About 50 percent of this association is Memphis soils, and about 45 percent is Guin soils. The rest is Collins soils and Mixed alluvial land on narrow bottoms.

The Memphis soils are on narrow ridges and the upper part of slopes. They are well-drained silty soils developed in loess. They have a brown silt loam surface layer and a brown to dark-brown silt loam or silty clay loam subsoil. The excessively drained Guin soils are on the middle and lower parts of slopes. They are gravelly and do not have a clearly defined subsoil.

This association generally is not suitable for farming. A few of the narrow ridgetops are used for crops and pasture, but about 90 percent of the association is forested. This association is too hilly and steep to be used for residential and industrial development. It is also too hilly to be developed for recreation other than as areas for hunting, camping, hiking, and dude ranching. Areas in the association are good sources of gravel, and a small amount is mined.

8. Memphis-Loring Association: Silty soils on rolling to steep uplands

This association consists of ridgetops of narrow or medium width and rolling to steep side slopes, mainly west of U.S. Highway No. 51. It is cut by intermittent streams and drainageways that have narrow bottoms. This association covers about 14 percent of the county.

The Memphis soils make up about 60 percent of the association, and Loring soils make up about 25 percent. These soils formed in loess. The rest of the association is Collins and Falaya soils.

The Memphis soils are well drained. They have a brown silt loam surface layer and a dark-brown silty clay loam or silt loam subsoil. The well-drained Loring soils have a brown silt loam surface layer and a dark-brown silty clay loam or silt loam subsoil. They have a fragipan at a depth of about 29 inches that is 1 to 3 feet thick. The Collins and Falaya soils are on narrow bottoms. They have a brown silt loam surface layer. Below a depth of 20 inches, the Collins soils are mottled with gray and brown and the Falaya soils are dominantly gray.

Most of the farms within this association are of the general type and produce both crops and livestock, but a few produce mainly beef cattle. The cleared areas are on ridges, bottoms, and rolling hillsides, and the steep areas are mostly forested. Trees and plants that provide food and cover for wildlife grow well on the soils of this association. For industrial or residential development, the area as a whole has severe limitations, but small sites can be selected for such development. This association can be developed for dude ranching, hunting, hiking, camping, and horseback riding.

9. Ruston-Providence Association: Sandy and silty soils on hilly uplands

Narrow, winding ridgetops and steep side slopes make up this association. The steep side slopes are cut by intermittent streams and drainageways that have narrow bottoms. The association is on hilly uplands in the northeastern part of the county, mainly north of the Yalobusha River and Grenada Lake. It covers about 5 percent of the county.

The Ruston soils make up about 35 percent of this association; the Providence soils, about 30 percent; and the Cuthbert soils, about 12 percent. The remaining 23 percent of the association is made up of Collins and Falaya soils on narrow bottoms, moderately well drained Tippah soils, well drained Loring soils, somewhat poorly drained Boswell soils, and other minor soils.

The Ruston soils are on the steep side slopes. These well-drained soils developed in sandy material of the Coastal Plain. They have a brown fine sandy loam surface layer and a yellowish-red sandy clay loam or loam subsoil. The Providence soils are on ridgetops and on the upper part of the side slopes where there is a thin covering of loess. These well-drained soils have a brown silt loam surface layer and a strong-brown to yellowish-red silty clay loam or silt loam subsoil. Providence soils have a fragipan at a depth of about 2 feet. The underlying material is sandy Coastal Plain material. The Cuthbert soils are on the upper part of the slopes above the head of drainageways. These soils have a brown fine sandy loam surface layer and a yellowish-red or red clay loam or clay subsoil. The underlying material consists of thin layers of clay, sand, and shale.

This association is chiefly forested. A few small general-type farms produce cotton, corn, pasture, and hay. Cultivation is mainly on the narrow ridges and the bottoms. Trees and plants that provide food and cover for wildlife grow well. Because this association is steep and hilly, it has severe limitations for industrial and residential development, but summer cottages can be built adjacent to Grenada Lake. The association is suitable for recreation, and areas can be developed for hunting, dude ranching, horseback riding, and hiking.

10. Ruston-Cuthbert-Providence Association: Sandy, clayey, and silty soils on hilly uplands

This association is on rolling to very steep uplands in the southeastern part of the county. The ridgetops are narrow to medium in width, and the side slopes are strongly sloping to very steep. The association is broken by intermittent streams and drainageways that have narrow bottoms. It covers about 19 percent of the county.

The Ruston soils and Cuthbert soils each make up about 30 percent of the association, and the Providence soils make up about 20 percent. The rest of the association consists mainly of moderately well drained Tippah soils, somewhat poorly drained Boswell soils, and Collins and Falaya soils on narrow bottoms.

The Ruston soils generally occupy steep and very steep side slopes. These are well-drained soils that developed in sandy material of the Coastal Plain. They have a brown fine sandy loam surface layer and a yellowish-red sandy clay loam or loam subsoil.

The Cuthbert soils are mainly on the upper part of the slopes above the heads of drainageways. These moderately well drained soils developed in clay and sand of the Coastal Plain. They have a brown fine sandy loam surface layer and a yellowish-red or red clay loam or clay subsoil.

The Providence soils are on ridgetops and on the strong side slopes. They are well drained and developed in thin loess over sandy material of the Coastal Plain. These soils have a brown silt loam surface layer and a strong-brown to yellowish-red silty clay loam or silt loam subsoil underlain by sandy material. Providence soils have a fragipan at a depth of 2 feet.

Most of the farms in this association are of the general type and produce crops and livestock. A few are beef-cattle farms, and two farms produce eggs commercially. The narrow bottoms and gently sloping ridgetops are used mostly for pasture, and the steep and very steep areas are chiefly forested. Because this association is hilly, most of it has severe limitations as a site for

residential and industrial development, but summer cottages can be built adjacent to Grenada Lake. Areas can be developed for hunting, dude ranching, picnicking, horseback riding, and hiking.

11. Tippah-Boswell-Dulac Association: Silty and clayey soils on hilly uplands

This association is on sloping to steep, hilly uplands in the east-central part of the county where the ridgetops are narrow to medium in width and the hillsides are sloping to steep. The association is cut by intermittent streams and short drainageways that have narrow bottoms. This association covers about 6 percent of the county.

Tippah soils make up about 40 percent of the association; Boswell soils, about 25 percent; and Dulac soils, about 10 percent. The rest is made up of well drained Providence soils and moderately well drained Grenada soils on uplands and of Collins and Falaya soils on the narrow bottoms.

The Tippah soils are on the ridgetops and on the upper part of the slopes where there is a thin covering of loess over plastic clay. These moderately well drained soils have a brown silt loam surface layer. Their subsoil is brown to yellowish-red silty clay that extends to a depth of about 20 inches. It is underlain by plastic clay that generally is mottled with shades of red, gray, brown, and yellow.

The Boswell soils are on the middle and lower parts of slopes in the steeper areas. These somewhat poorly drained soils developed in acid clay of the Coastal Plain. They have a fine sandy loam surface layer. The subsoil is red clay that extends to a depth of about 18 inches and is underlain by clay that is mottled with shades of red, gray, brown, and yellow.

The Dulac soils are on some of the broader gently sloping ridgetops. They are moderately well drained and have a brown silt loam surface layer. Their subsoil is strong-brown clay loam or silt loam that extends to a depth of about 36 inches. A fragipan is at a depth of about 18 inches and is 1 to 2 feet thick. The subsoil is underlain by heavy plastic clay.

The Collins and Falaya soils formed on bottoms in sediments recently washed from nearby uplands. These soils are silty to a depth of several feet, and both have a seasonally high water table. They have a brown surface layer. Below a depth of 20 inches, Collins soils are mottled with gray and brown and Falaya soils are mainly gray.

Most areas on gently sloping ridges and on the bottoms are used for row crops. The open rolling areas are used for pasture, and the steep and very steep areas are chiefly forested. In this association the farms are small and are mainly of the general type. Most of them produce both crops and livestock, but a few produce mainly cattle. Much of this association has severe limitations to use for residential and industrial development. The areas are hilly, and filter fields for septic tanks function poorly because the underlying clay is slowly permeable. Except for hunting, hiking, and horseback riding, this association is of severely limited use for recreational development.

12. Providence-Loring-Ruston Association: Silty and sandy soils on hilly uplands

This association is in a strip about 3 to 5 miles wide that runs through the hilly uplands of the central part of the county. The ridgetops are narrow to medium in width, and the side slopes are steep and very steep. The association is cut by intermittent streams and short drainageways that have narrow bottoms. This association covers about 6 percent of the county.

About 35 percent of this association is Providence soils, 25 percent is Loring soils, and 20 percent is Ruston soils. The rest is well drained Memphis soils, moderately well drained Cuthbert and Tippah soils, and Collins and Falaya soils on the narrow bottoms.

The Providence soils are on narrow ridgetops and on the upper parts of the slopes where there is a thin covering of loess over sandy material of the Coastal Plain. These soils are well drained and have a brown silt loam surface layer and a strong-brown to yellowish-red silty clay loam or silt loam subsoil. A fragipan occurs 2 feet below the surface and is 1 to 3 feet thick.

The Loring soils are on the broader ridgetops and on the upper part of the slopes where the loess covering is 4 feet thick or more. These well-drained soils have a brown silt loam surface layer, a dark-brown silty clay loam or silt loam subsoil, and a fragipan at a depth of about 30 inches.

The Ruston soils are on the steep side slopes. These soils are well drained and developed in sandy material of the Coastal Plain. They have a brown fine sandy loam surface layer and a yellowish-red sandy clay loam or loam subsoil.

Most of the farms in this area are of the general type and produce crops and livestock. Row crops, pasture, and hay are grown on the bottom lands and some of the ridgetops. The open rolling areas are used mostly for pasture, and the steep areas are forested. Trees and plants that produce food and cover for wildlife make good growth on the soils of this association. As a whole, this association is limited in its use for residential and industrial development because it is hilly, but small sites can be selected for such development. The association is suitable for hunting, dude ranching, hiking, horseback riding, and skeet and trap ranges.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Grenada County, where they are located, and how they can be used.

They went into the county knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Grenada and Memphis, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Alligator clay and Alligator silty clay loam are two soil types in the Alligator series. The difference in texture of their surface layers is apparent from their names.

Some types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into phases. The name of a soil phase indicates a feature that affects management. For example, Memphis silt loam, 0 to 2 percent slopes, is one of several phases of Memphis silt loam, a soil type that ranges from nearly level to steep.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that greatly help in drawing boundaries accurately. The soil map in the back of this report was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed, and so small in size that it is not practical to show them separately on the map. Therefore, they show this mixture of soils as one mapping unit and call it a soil complex. Ordinarily, a soil complex is named for the major kinds of soils in it, for example, Tippah-Boswell complex, 8 to 12 percent slopes.

Some mapping units contain more than one kind of soil in a pattern more open and less intricate than that of a soil complex. Such a mapping unit is called a soil association. A soil association differs from a soil complex in that its component soils can be mapped separately, at ordinary scales such as 4 inches per mile, if practical advantages make the effort worthwhile. A soil association, like a soil complex, is named for the major soils in it, for example, Ruston-Cuthbert association, hilly. The composition of mapping units named as soil associations is more variable than that of other mapping units but has been controlled well enough to allow interpretations for the expected uses of the soils.

Also shown on most soil maps are areas so shallow or so frequently worked by wind and water that they scarcely can be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Gullied land or Sandy alluvial land, and are called land types rather than soils.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in the soil surveys. On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test their groupings by further study and by consultation with farmers, agronomists, engineers, and others. Then, the scientists adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

Descriptions of the Soils

This section describes the soil series (groups of soils) and single soils (mapping units) of Grenada County. The acreage and proportionate extent of each mapping unit are given in table 1.

The procedure in this section is first to describe the soil series and then the mapping units in the series. Thus to get full information on any one mapping unit, it is necessary to read the description of that unit and also the description of the soil series to which it belongs. As mentioned in the section "How This Survey Was Made," not all mapping units are members of a soil

series. Mixed alluvial land and Sandy alluvial land are miscellaneous land types and do not belong to a soil series; nevertheless, they are listed in alphabetic order along with the series.

Following the name of each mapping unit, there is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of each description of a mapping unit are the capability unit and the woodland suitability group in which the mapping unit has been placed. The pages on which each capability unit and each woodland group are described can be found by referring to the "Guide to Mapping Units" at the back of this soil survey.

Soil scientists, engineers, students, and others who want detailed descriptions of the soil series should turn to the section "Formation, Classification, and Morphology of Soils." Many terms used in the soil descriptions and other sections are defined in the Glossary.

Alligator Series

In the Alligator series are poorly drained soils derived from fine-textured alluvium. These soils are on broad flats and in depressions on the Mississippi River alluvial plain in the extreme western part of the county. The main layers of a typical profile are—

0 to 4 inches, dark grayish-brown, firm clay.
4 to 26 inches, gray, plastic clay with many mottles of yellowish brown and dark brown.
26 to 48 inches, gray, very plastic clay with many mottles of yellowish brown and brownish yellow.

Alligator clay (0 to 2 percent slopes) (Ac).—This poorly drained soil is on first bottoms on the Mississippi River alluvial plain. The surface layer is dark grayish-brown firm clay about 4 inches thick. The subsoil is gray, plastic clay mottled with yellow and brown. Included in mapping were a few small areas that have a silty clay loam surface layer.

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Acres	Percent	Soil	Acres	Percent
Alligator clay	416	0.2	Memphis silt loam, 0 to 2 percent slopes	1,386	0.5
Alligator clay, depressional	381	.1	Memphis silt loam, 2 to 5 percent slopes, eroded	277	.1
Alligator silty clay loam	1,389	.5	Memphis silt loam, 5 to 8 percent slopes, severely eroded	2,840	1.0
Alligator association	2,790	1.0	Memphis silt loam, 8 to 12 percent slopes, severely eroded	1,960	.7
Borrow area	92	(1)	Memphis silt loam, 12 to 17 percent slopes	1,940	.7
Boswell-Tippah complex, 17 to 40 percent slopes	7,264	2.6	Memphis silt loam, 12 to 17 percent slopes, eroded	4,711	1.7
Calloway silt loam, 0 to 2 percent slopes	6,375	2.3	Memphis silt loam, 17 to 40 percent slopes	7,760	2.8
Calloway silt loam, 2 to 5 percent slopes	1,846	.7	Memphis silt loam, 17 to 50 percent slopes, severely eroded	850	.3
Cascilla silt loam	325	.1	Memphis-Guin complex, 17 to 50 percent slopes	4,078	1.5
Collins silt loam	16,945	6.1	Mixed alluvial land	1,940	.7
Collins silt loam, local alluvium	2,760	1.0	Providence-Loring association, hilly	7,105	2.6
Cuthbert-Ruston association, hilly	22,520	8.1	Providence-Loring complex, 8 to 12 percent slopes, eroded	830	.3
Cuthbert-Ruston complex, 12 to 17 percent slopes	1,140	.4	Providence-Loring complex, 12 to 17 percent slopes	760	.3
Cuthbert-Ruston complex, 12 to 17 percent slopes, eroded	2,160	.8	Providence-Loring complex, 12 to 17 percent slopes, eroded	1,140	.4
Dubbs silty clay loam	151	(1)	Providence silt loam, 5 to 8 percent slopes, eroded	275	.1
Dulac silt loam, 2 to 5 percent slopes, eroded	140	(1)	Providence silt loam, 5 to 8 percent slopes, severely eroded	1,690	.6
Dulac silt loam, 5 to 8 percent slopes, eroded	1,110	.4	Ruston-Cuthbert association, hilly	21,660	7.8
Dulac silt loam, 5 to 8 percent slopes, severely eroded	3,880	1.4	Ruston-Providence association, hilly	7,260	2.6
Falaya-Collins association	6,220	2.2	Ruston-Providence complex, 12 to 17 percent slopes	420	.2
Falaya silt loam	29,160	10.5	Ruston-Providence complex, 12 to 17 percent slopes, eroded	580	.2
Falaya silt loam, local alluvium	2,680	1.0	Sandy alluvial land	720	.3
Forestdale silty clay loam	337	.1	Sand pits	490	.2
Gravel pits	500	.2	Tippah-Boswell complex, 8 to 12 percent slopes	554	.2
Grenada silt loam, 0 to 2 percent slopes	1,960	.7	Tippah-Boswell complex, 8 to 12 percent slopes, eroded	2,220	.8
Grenada silt loam, 2 to 5 percent slopes, eroded	5,130	1.8	Tippah-Boswell complex, 12 to 17 percent slopes	2,030	.7
Grenada silt loam, 2 to 5 percent slopes, severely eroded	554	.2	Tippah-Boswell complex, 12 to 17 percent slopes, eroded	1,920	.7
Grenada silt loam, 5 to 8 percent slopes, eroded	222	.1	Vicksburg silt loam	415	.1
Grenada silt loam, 5 to 8 percent slopes, severely eroded	3,603	1.3	Vicksburg silt loam, local alluvium	220	.1
Gullied land, clayey	2,875	1.0	Waverly-Falaya association	12,900	4.7
Gullied land, sandy	11,620	4.2	Waverly silt loam	9,700	3.5
Gullied land, silty	28,180	10.2			
Henry silt loam	1,650	.6	Total	277,120	100.0
Loring silt loam, 0 to 2 percent slopes	260	.1			
Loring silt loam, 2 to 5 percent slopes, eroded	554	.2			
Loring silt loam, 2 to 5 percent slopes, severely eroded	166	(1)			
Loring silt loam, 5 to 8 percent slopes, eroded	915	.3			
Loring silt loam, 5 to 8 percent slopes, severely eroded	4,082	1.5			
Loring silt loam, 8 to 12 percent slopes, eroded	277	.1			
Loring silt loam, 8 to 12 percent slopes, severely eroded	3,860	1.4			

[1] Less than 0.05 percent.

This soil is strongly acid, is high in natural fertility, and has high available water capacity. Infiltration and permeability are very slow, and water puddles on the surface during wet weather. The soil shrinks and cracks as it dries, for the shrink-swell potential is very high. In the cracks the initial intake of water is very rapid, but intake slows as the soil is moistened and swells and the cracks close.

Most of this soil is in cultivated crops or in pasture. The soil is suited to most crops commonly grown in the county and generally produces fairly favorable yields. Because the soil is wet and sticky in spring, preparing the seedbed and planting crops are often delayed. Flooding occurs mainly in winter and spring, and it moderately damages crops. (Capability unit IIIw–4; woodland group 5)

Alligator clay, depressional (0 to 2 percent slopes) (Ac).—This poorly drained, fine-textured soil is in depressions and drainageways on the Mississippi River alluvial plain. It has a dark grayish-brown clay surface layer about 2 inches thick. The subsoil is gray, plastic clay mottled with brown and yellow. Included in mapping were a few areas that have a silty clay loam surface layer.

This soil is strongly acid, is high in natural fertility, and has high available water capacity. Infiltration and permeability are very slow. For fairly long periods in spring, surface runoff from higher adjacent soils collects and ponds on this soil.

This soil is well suited to pasture and trees, but it is poorly suited to most of the row crops commonly grown in the county. Crops are moderately or severely damaged by flooding. (Capability unit IVw–1; woodland group 5)

Alligator silty clay loam (0 to 2 percent slopes) (As).—This poorly drained soil has a dark grayish-brown silty clay loam surface layer about 4 inches thick. The subsoil is gray, very plastic clay that is mottled with yellow and brown. Included in the mapping were a few small areas that have a clay surface layer.

This soil is strongly acid. It has high available water capacity and is high in natural fertility. Infiltration and permeability are very slow.

About 95 percent of this soil is in cultivated crops or in pasture. The soil is suited to most crops commonly grown in the county. Because it is very sticky when wet, it can be cultivated only within a narrow range of moisture content. In spring wetness often delays preparing of the seedbed and planting. Flooding occurs mainly in winter and spring, and it moderately damages crops. (Capability unit IIIw–3; woodland group 5)

Alligator association (0 to 2 percent slopes) (At).—This mapping unit is in forested areas on broad flats and in depressions on the Mississippi River alluvial plain in the extreme western part of the county. A few shallow lakes or sloughs have formed where water has been trapped in old stream runs. About 46 percent of this unit is Alligator silty clay loam, about 42 percent is Alligator clay on the broad flats, and about 12 percent is Alligator clay in the depressions.

The soils in this unit are poorly drained. Their surface layer of very dark grayish-brown clay or silty clay loam is about 3 inches thick. The subsoil is gray, plastic clay or silty clay mottled with shades of brown and yellow.

These soils are strongly acid, are high in natural fertility, and have high available water capacity. Infiltration and permeability are very slow.

All of this mapping unit is in hardwood forest that has a dense undergrowth of brush, vines, briers, and canes. The soils are suited to most crops commonly grown in the county, but drainage is needed to remove excess water. Flooding occurs mainly in winter and spring, at which times the depressions are ponded for long periods. The hazard of flooding is moderate or severe. (Capability unit Vw–1; woodland group 5)

Borrow Area

Borrow area (Ba) consists of excavations from which soil and underlying material have been removed for use in building highways and levees. These pits fill with water during heavy rains. Some of the larger ones that never dry up are used for fishing. Others are used for hunting. (Not placed in a capability unit or woodland group)

Boswell Series

In the Boswell series are moderately well drained soils of the uplands. These soils were derived from plastic clay of the Coastal Plain. They have slopes of 8 to 40 percent and are mainly on hillsides in the eastern part of the county. The main layers of a typical profile are—

0 to 4 inches, dark grayish-brown, friable fine sandy loam.
4 to 18 inches, red, plastic clay.
18 to 41 inches, mottled red, light-gray, and brownish-yellow very plastic clay.
41 to 60 inches, yellowish-red, very plastic clay mottled prominently with light gray and light yellowish brown.

Boswell-Tippah complex, 17 to 40 percent slopes (BtF).—The soils of this complex are on hilly uplands in the eastern part of the county. They are in areas consisting of narrow winding ridges and long, steep side slopes that are cut by numerous drainageways. About 45 percent of this complex is Boswell soil, and about 40 percent is Tippah soil. Moderately well drained silty Cuthbert soil makes up about 10 percent, and well drained silty Providence soil accounts for 5 percent. The main soils of this unit occur in a fairly uniform pattern. The minor soils are in some areas but not all. Included in mapping were a few eroded areas that were once cultivated.

The moderately well drained Boswell soil is on the middle and lower parts of the slopes. It has a surface layer of dark grayish-brown to brown, friable fine sandy loam about 4 inches thick. The subsoil is red, plastic clay that extends to a depth of about 18 inches. It is underlain by very plastic clay that is mottled with shades of red, gray, yellow, and brown.

The Boswell soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are slow.

The moderately well drained Tippah soil is on narrow ridgetops and the upper parts of the slopes. It was derived from a thin layer of loess underlain by plastic clay of the Coastal Plain. It has a surface layer of dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil extends to a depth of about 20 inches and is strong-brown to yellowish-red silty clay

loam. The underlying material is plastic clay mottled with shades of red, gray, brown, yellow, and olive.

The Tippah soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow. A profile typical of Tippah soils is described for the Tippah series.

Most of this mapping unit is in pine and hardwood forest. Although woodland is a suitable use, cultivated crops or pasture is not. Because slopes are steep, runoff is very rapid and erosion is a severe hazard. (Capability unit VIIe–5; woodland group 19)

Calloway Series

The Calloway series is made up of somewhat poorly drained soils that have a fragipan. These soils were derived from thick beds of loess. They occur throughout the county on broad nearly level to gently sloping uplands and terraces. The main layers of a typical profile are—

0 to 8 inches, brown, friable silt loam.
8 to 16 inches, light yellowish-brown, friable silt loam commonly mottled with light gray.
16 to 45 inches, (fragipan) mottled light-gray, brownish-yellow, and yellowish-brown, firm silty clay loam or heavy silty loam.
45 to 60 inches, brown, friable silt loam mottled with pale brown and light gray.

Calloway silt loam, 0 to 2 percent slopes (CaA).—This somewhat poorly drained soil is on broad nearly level uplands. The surface layer is dark grayish-brown, grayish-brown, or brown silt loam about 8 inches thick. To a depth of about 16 inches the subsoil consists of yellowish-brown or brownish-yellow silt loam mottled with light gray. It has a fragipan that is hard and compact when dry. This layer is several feet thick and consists of mottled light-gray, yellowish-brown, and brownish-yellow silt loam or silty clay loam. Included in mapping were a few small areas of Grenada and Henry soils.

This soil is strongly acid, is low in natural fertility, and has medium or low available water capacity. Moisture and plant roots readily penetrate as deep as the fragipan, where further penetration is retarded.

This soil is easy to work and fairly easy to maintain in good tilth. It is suited to most crops commonly grown in the county. Because this soil is wet early in spring, preparing the seedbed and planting crops are often delayed. Heavy fertilization is needed for producing favorable yields. (Capability unit IIw–4; woodland group 10)

Calloway silt loam, 2 to 5 percent slopes (CaB).—This somewhat poorly drained soil occurs throughout the county. It has a dark grayish-brown, grayish-brown, or brown surface layer about 6 inches thick. In some fields the subsoil has been exposed in a few spots by tillage. To a depth of about 15 inches, the subsoil is yellowish-brown to brownish-yellow silt loam mottled with light gray. It has a fragipan that is hard and compact when it is dry. This layer is several feet thick and consists of mottled light-gray, yellowish-brown, and brownish-yellow silt loam or silty clay loam. Included in mapping were a few small areas of Grenada and Henry soils.

This Calloway soil is strongly acid, is low in natural fertility, and has medium or low available water capacity. Moisture and plant roots readily penetrate as deep as the fragipan, where further penetration is retarded.

This soil is easy to work and fairly easy to keep in good tilth. It is suited to most crops commonly grown in the county. Because this soil is wet early in spring, preparing the seedbed and planting crops are often delayed. Heavy fertilization is needed for producing favorable yields. (Capability unit IIw–4; woodland group 10)

Cascilla Series

In the Cascilla series are nearly level, well-drained soils that were derived from loess. These soils occur in the higher areas bordering old stream channels on the alluvial plain of the Yalobusha River. The main layers of a typical profile are—

0 to 7 inches, brown, very friable silt loam.
7 to 36 inches, dark-brown or dark yellowish-brown, friable silt loam.
36 to 59 inches, yellowish-brown, friable silt loam.
59 to 72 inches, yellowish-brown, very friable fine sandy loam.

Cascilla silt loam (0 to 2 percent slopes) (Cc).—This well-drained silty soil occurs mainly on the alluvial plain of the Yalobusha River. Its surface layer is brown to grayish-brown, very friable silt loam about 6 to 10 inches thick, and its subsoil is dark-brown to yellowish-brown silt loam. Included in mapping were a few small areas of Vicksburg and Collins soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Water enters the soil slowly and moves through it at a moderate rate.

This soil is mostly in cultivated crops or in pasture. It is suited to all of the crops commonly grown in the county and produces favorable yields if fertilizer is added and the soil is well managed. Tilth is easily maintained, and cultivation can be carried out through a wide range in moisture content. (Capability unit I–2; woodland group 3)

Collins Series

The Collins series consists of moderately well drained soils that were derived from silty alluvium along streams. These soils occur throughout the county. The main layers of a typical profile are—

0 to 8 inches, brown, friable silt loam.
8 to 22 inches, yellowish-brown or dark yellowish-brown, friable silt loam.
22 to 42 inches, mottled light brownish-gray, gray, brown, and yellowish-brown, friable silt loam.
42 to 60 inches, gray, friable silt loam.

Collins silt loam (0 to 2 percent slopes) (Cm).—This silty soil of the bottom lands has a brown, friable silt loam surface layer about 6 to 10 inches thick. The subsoil is friable silt loam that is yellowish brown or dark yellowish brown to a depth of about 22 inches and is mottled light brownish gray, gray, brown, and yellowish brown below that depth. Included in mapping were a few small areas of well-drained Vicksburg soils.

This Collins soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

Most of this soil is in cultivated crops or in pasture. Tilth is easily maintained, and cultivation can be carried

out within a wide range of moisture content. If fertilizer is added and the soil is well managed, favorable yields of the commonly grown crops are obtained. (In areas protected by diversions and major structures for flood control, this soil is in capability unit I–2; unprotected areas are in capability unit IIw–2; all areas are in woodland group 3)

Collins silt loam, local alluvium (1 to 3 percent slopes) (Cn).—This moderately well drained soil occurs in narrow drainageways near the heads of streams, where it was derived from silty alluvium recently washed down from the adjacent uplands. This soil is at higher elevations than the soils that formed in general alluvium and normally is above the floodwaters of the larger streams. The surface layer is brown, very friable silt loam about 6 to 10 inches thick. The subsoil is thinly stratified brown or yellowish-brown, friable silt loam that extends to a depth of about 26 inches. It is underlain by mottled light-gray, pale-brown, and dark-brown, friable silt loam. Included in mapping were a few small areas of sandy soil and of Vicksburg silt loam, local alluvium.

This Collins soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mostly in cultivated crops or in pasture. It is suited to the crops commonly grown in the county, and it produces favorable yields where fertilizer is added and other good management is used. Tilth is easily maintained. This soil can be cultivated within a wide range of moisture content, but the use of large machinery is somewhat restricted because areas of this soil are small. Occasionally, during heavy rains this soil is flooded by water from adjacent hills, but damage to crops is only slight because the floods do not last long. (Capability unit I–2; woodland group 3)

Cuthbert Series

In the Cuthbert series are moderately well drained soils that were derived from clay and sand of the Coastal Plain. These soils have slopes of 12 to 50 percent and are on hilly uplands in the eastern part of the county. The main layers of a typical profile are—

0 to 4 inches, grayish-brown to brown, very friable fine sandy loam.
4 to 10 inches, yellowish-red, firm clay.
10 to 15 inches, strong-brown, firm clay wth a few dark-brown mottles.
15 to 50 inches, thinly layered pale-brown and yellowish-brown clayey shale with lenses of sand between the layers.

Cuthbert-Ruston association, hilly (17 to 45 percent slopes) (CrF).—This mapping unit occupies long winding ridges and very steep side slopes that are cut by numerous drainageways. It is on rough hilly uplands in the eastern part of the county. Rocks crop out in some areas, especially where the slopes are steeper than 35 percent. About 46 percent of this unit is Cuthbert soil, and about 31 percent is Ruston soil. Providence soil makes up 11 percent, and moderately well drained Collins soil and other soils in narrow drainageways make up about 3 percent. Other minor soils include the moderately well drained silty Tippah soil, the moderately well drained clayey Boswell soil, and the moderately well drained silty Dulac soil. Also included are a few small areas of excessively drained sandy soils and a few areas of moderately well drained soils that have a fragipan.

The main soils of this unit occur in a fairly uniform pattern. Each area contains Cuthbert and Ruston soils and generally one or more of the minor soils. A few eroded areas that were formerly cultivated are included in the mapped areas.

The Cuthbert soil generally occupies the middle and lower parts of the slopes, but it is also on sharp breaks above the heads of drainageways in some places. This soil is moderately well drained and was derived from clay and sand of the Coastal Plain. Its surface layer is dark grayish-brown to brown, very friable fine sandy loam about 4 to 8 inches thick. The subsoil is strong-brown to red clay loam or clay. This soil is underlain by thinly layered clay and sand, or by clay shale. In many places fragments of sandstone are on the surface and throughout the profile, and in other places the sandstone occurs in layers about half an inch to 3 inches thick, generally at a depth of about 18 inches.

The Cuthbert soil is very strongly acid, is low in natural fertility, and has medium or low available water capacity. Infiltration is moderate to slow, and permeability is slow.

The Ruston soil generally occupies the very steep upper and middle parts of the slopes, but it is on the narrow ridgetops in some places. This well-drained soil was derived from sandy material of the Coastal Plain. It has a surface layer of dark grayish-brown to yellowish-brown, very friable fine sandy loam or sandy loam about 8 to 16 inches thick. The subsoil is strong-brown to red sandy clay loam to loam. This soil is underlain by yellowish-brown to red sandy clay loam to loamy sand. A profile typical of Ruston soils is described for the Ruston series.

The Ruston soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are moderate.

The Providence soil is on the narrow ridgetops where there is a thin covering of loess. This well-drained soil was derived from a thin mantle of loess over sandy material of the Coastal Plain. It has a surface layer of dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil is strong-brown to yellowish-red silty clay loam or silt loam that has a fragipan at a depth of about 24 inches. The fragipan, about 1 to 3 feet thick, is underlain by sandy loam, loam, or sandy clay loam. A profile typical of Providence soils is described for the Providence series.

This soil is strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

Almost all of this unit is in pine and hardwood forest. Because it is hilly, this unit is not suited to cultivation or pasture, but it is suited to trees. The very rapid runoff creates a very severe hazard of erosion. (Capability unit VIIe–4; woodland group 25)

Cuthbert-Ruston complex, 12 to 17 percent slopes (CxE).—The soils of this complex occupy narrow winding ridgetops and fairly long side slopes. They are on steep uplands, mainly in the southeastern part of the county. About 45 percent of this complex is Cuthbert soil, and about 40 percent is Ruston soil. Providence soil makes up 12 percent, and Tippah soil amounts to 3 percent.

The main soils of this unit occur in a fairly uniform pattern. Each area contains Cuthbert and Ruston soils and generally one or more of the minor soils.

The moderately well drained Cuthbert soil is mainly on the middle and lower parts of the slopes. It has a surface layer of dark grayish-brown to brown, friable fine sandy loam about 4 to 8 inches thick. The subsoil is strong-brown to red clay loam or clay that extends to a depth of about 18 inches and is underlain by thinly layered clay and sand or clay shale. In many places fragments of sandstone are on the surface and throughout the profile, and in other places the sandstone is in layers about half an inch to 3 inches thick.

The Cuthbert soil is very strongly acid, is low in natural fertility, and has medium or low available water capacity. Infiltration is moderate to slow, and permeability is slow.

The Ruston soil is well drained. It is mainly on the steep upper and middle parts of the slopes, but it is on the ridgetops in some places. The surface layer is dark grayish-brown to yellowish-brown, very friable fine sandy loam about 10 to 16 inches thick. The subsoil is strong-brown to red sandy clay loam or loam that is underlain by sandy loam, loam, sandy clay loam, and in some places loamy sand.

The Ruston soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are moderate.

The well-drained Providence soil is on narrow ridgetops where there is a thin covering of loess. It has a surface layer of dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil is a strong-brown to yellowish-red silty clay loam or silt loam that has a fragipan at a depth of about 24 inches. The fragipan is about 1 to 3 feet thick and is underlain by sandy loam, loam, or sandy clay loam.

This Providence soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

This unit is not suitable for cultivation, and almost all of it is in pine and hardwood forest. Trees grow well, but pasture is poorly suited. The rapid runoff creates a very severe hazard of erosion. (Capability unit VIIe–4; woodland group 24)

Cuthbert-Ruston complex, 12 to 17 percent slopes, eroded (CxE2).—This mapping unit is on steep uplands in the eastern part of the county. Most of the acreage has been cleared and at one time cultivated or used for pasture. Rills and small severely eroded spots are common in most fields, and some fields have a few shallow gullies. About 45 percent of this complex is Cuthbert soil, and about 40 percent is Ruston soil. Providence soil makes up about 12 percent, and Tippah soil amounts to 3 percent. The main soils of this unit occur in a fairly uniform pattern. Each area contains Cuthbert and Ruston soils and generally one or more of the minor soils.

The moderately well drained Cuthbert soil is on the middle and lower parts of the slopes. It has a surface layer of grayish-brown to brown, friable sandy loam about 3 to 5 inches thick. The subsoil is strong-brown to red clay loam or clay that extends to a depth of about 15 inches, where it is underlain by thinly layered clay and sand, or by clay shale.

This Cuthbert soil is very strongly acid, is low in natural fertility, and has medium or low available water capacity. Infiltration is moderate to slow, and permeability is slow.

The Ruston soil is mainly on the upper and middle parts of the slopes. It is a well-drained soil that formed in sandy material of the Coastal Plain. The surface layer is grayish-brown to brown, very friable fine sandy loam about 4 to 8 inches thick. The subsoil is a strong-brown to yellowish-red sandy clay loam or loam that is underlain by yellowish-brown to red sandy loam, loam, or sandy clay loam and, in some places, by loamy sand.

This Ruston soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are moderate.

The well-drained Providence soil is on narrow ridgetops where there is a thin covering of loess. Its surface layer is grayish-brown to brown, friable silt loam about 3 to 5 inches thick. The subsoil is strong-brown to yellowish-red silty clay loam or silt loam. At a depth of about 20 inches, a fragipan occurs that is 1 to 3 feet thick and is underlain by loamy sand to sandy clay loam.

This Providence soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

The soils of this complex are not suitable for cultivation, and more than half of the acreage has been planted to pine trees. A small acreage is idle, and a larger acreage is in pasture. Pine trees grow well on these soils, but pasture is poorly suited. Because runoff is rapid, the hazard of erosion is very severe. (Capability unit VIIe–4; woodland group 24)

Dubbs Series

In the Dubbs series are nearly level, well-drained soils that were derived from alluvium. These soils are on natural levees bordering old stream channels on the alluvial plain of the Mississippi River. The main layers of a typical profile are—

0 to 7 inches, very dark grayish-brown, friable silty clay loam.
7 to 22 inches, brown, firm silty clay loam.
22 to 33 inches, dark grayish-brown, firm silty clay loam with common, yellowish-brown mottles.
33 to 48 inches, mottled grayish-brown, pale-brown, and yellowish-brown, friable light silty clay loam.

Dubbs silty clay loam (0 to 2 percent slopes) (Db).—This soil is on natural levees that border old stream channels on the alluvial plain of the Mississippi River. Its surface layer is very dark grayish-brown to dark-brown, friable silty clay loam about 6 to 8 inches thick. The subsoil is dark-brown to dark grayish-brown, firm silty clay loam that extends to a depth of about 33 inches. Underlying the subsoil is friable light silty clay loam or silt loam that is mottled grayish brown, pale brown, and yellowish brown. Included in mapping were a few areas of moderately well drained soils.

This Dubbs soil is strongly acid, is high in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderately slow.

Most of this soil is in cultivated crops or in pasture. It is suited to most of the crops commonly grown in the county, and it generally produces favorable yields. (Capability unit IIw–5; woodland group 6)

Dulac Series

The Dulac series is made up of moderately well drained soils that have a fragipan. These soils were derived from thin layers of loess over plastic clay of the Coastal Plain. They are on ridgetops and sloping ridges in the eastern part of the county and have slopes of 2 to 8 percent. The main layers of a typical profile are—

0 to 5 inches, brown, friable silt loam.
5 to 18 inches, strong-brown, firm silty clay loam.
18 to 36 inches, (fragipan) brown, firm, compact silt loam with common, light brownish-gray mottles.
36 to 60 inches, mottled yellowish-red, gray, and brownish-yellow, very firm, very plastic clay.

Dulac silt loam, 2 to 5 percent slopes, eroded (DuB2).—This moderately well drained soil is on ridgetops that are narrow to medium in width. The surface layer is brown, friable silt loam, but the subsoil is exposed at the surface in small rills and in small severely eroded spots. The subsoil is strong-brown to dark-brown silty clay loam or silt loam and has a fragipan at a depth of about 22 inches. The fragipan extends to a depth of about 40 inches and is underlain by mottled red and gray plastic clay. Included in mapping were a few small areas of Tippah and Providence soils.

This soil is strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

Most of this soil was once cultivated, but a large acreage is now in pasture. This soil is suited to most of the crops commonly grown in the county, and it produces fairly favorable yields if a fertilizer is added and good management is used. Runoff and the hazard of erosion are moderate. (Capability unit IIe–2; woodland group 13)

Dulac silt loam, 5 to 8 percent slopes, eroded (DuC2).—This moderately well drained soil occupies moderately sloping ridges on the uplands. The surface layer is brown, friable silt loam. The subsoil is exposed in rills and in small severely eroded spots and consists of strong-brown to dark-brown silty clay loam or silt loam. A fragipan occurs at a depth of about 18 inches and extends to about 36 inches. It is underlain by plastic clay. Included in mapping were a few small areas of Tippah and Providence soils.

This soil is strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

Most of this soil was once cultivated, but a large acreage is now in pasture. This soil is suited to the crops commonly grown in the county, and it produces fairly favorable yields if fertilizer is added and good management is used. Runoff is moderately rapid, and the hazard of erosion is moderate to severe. (Capability unit IIIe–3; woodland group 13)

Dulac silt loam, 5 to 8 percent slopes, severely eroded (DuC3).—This moderately well drained soil is on uplands. Almost all of its original surface soil has been removed by erosion, and rills and a few gullies are common in most fields. The present surface layer is a mixture of the subsoil and the remnant of the original surface soil. It is dark yellowish-brown, friable silt loam about 4 inches thick. The subsoil is strong-brown to yellowish-brown heavy silt loam or silty clay loam. A fragipan occurs at a depth of about 16 inches, extends to about 28 inches, and is underlain by plastic clay. Included in mapping were a few small areas of Tippah and Providence soils.

This soil is strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

At one time all of this soil was cultivated, but the main use now is pasture. Fair yields of the crops commonly grown in the county are obtained if this soil is heavily fertilized and well managed. Runoff is moderate to rapid, and the hazard of erosion is severe. (Capability unit IVe–2; woodland group 11)

Falaya Series

The Falaya series consists of somewhat poorly drained soils that were derived from silty alluvium. These soils are on stream bottoms throughout the county. The main layers of a typical profile are—

0 to 10 inches, brown, friable silt loam.
10 to 18 inches, mottled grayish-brown, pale-brown, and dark-brown, friable silt loam.
18 to 60 inches, dominantly gray, friable silt loam mottled with brown and yellow.

Falaya-Collins association (0 to 2 percent slopes) (Fc).—This mapping unit is made up of nearly level to gently undulating, silty soils on bottom lands along the Yalobusha River. A few shallow lakes or sloughs have formed where water is trapped in old stream channels that meander through the area. The soils of this unit occur in a fairly uniform pattern; about 70 percent is Falaya soil, and about 24 percent is Collins soil. The remaining 6 percent is Waverly soil.

The somewhat poorly drained Falaya soil is on the broad flats. It has a surface layer of dark grayish-brown, friable silt loam about 8 inches thick. The subsoil extends to a depth of about 14 inches and consists of dark yellowish-brown, friable silt loam mottled with light gray. The subsoil is underlain mainly by light-gray, friable silt loam.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

The moderately well drained Collins soil is near the streams and sloughs in higher areas than the Falaya soil. The surface layer of the Collins soil is dark grayish-brown, friable silt loam about 10 inches thick. The subsoil is dark yellowish-brown, friable silt loam that extends to a depth of about 23 inches. Below 23 inches is gray, friable silt loam mottled with yellowish brown. A profile typical of Collins soils is described for the Collins series.

This Collins soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

The Waverly soil occurs in small depressions and is poorly drained. The surface layer is very dark grayish-brown, friable silt loam about 4 inches thick, and the subsoil is gray silt loam or silty clay loam. A profile typical of Waverly soils is described for the Waverly series.

The Waverly soil is strongly acid, is medium or low in natural fertility, and has medium or low available water capacity. Infiltration is slow, and permeability is moderate to slow.

All of this mapping unit is in hardwood forest and is covered by a dense undergrowth of brush, vines, briers, and canes. The soils are suited to most of the crops commonly grown in the county, but a drainage system is needed to remove excess water. The hazard of flooding is moderate to severe. Floods occur mainly in winter and spring and keep the depressions ponded for long periods. (Capability unit IVw–2; woodland group 7)

Falaya silt loam (0 to 2 percent slopes) (Ff).—This somewhat poorly drained soil is on bottom lands throughout the county. The surface layer is a brown, friable silt loam about 10 inches thick. The subsoil is a mottled grayish-brown, pale-brown, and dark-brown, friable silt loam that extends to a depth of about 18 inches. Below the subsoil is dominantly gray, friable silt loam. Included in mapping were a few small areas of moderately well drained Collins and poorly drained Waverly soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Water enters this soil slowly and moves through it at a moderate rate.

This soil is mostly in cultivated crops or in pasture. It is easy to work and to keep in good tilth, but the surface crusts after heavy rains. This soil normally produces favorable yields of the crops commonly grown in the county if it is fertilized and otherwise managed well. Flooding in winter and early in spring generally lasts only a short time and causes slight to moderate damage to crops. (Capability unit IIw–3; woodland group 7)

Falaya silt loam, local alluvium (1 to 3 percent slopes) (Fl).—This somewhat poorly drained soil occurs in small narrow drainageways, where it formed in silty alluvium recently washed from the adjacent loess-covered uplands. It is higher than soils in general alluvium and is generally above the floodwaters of the larger streams. The surface layer is brown to dark-brown, friable silt loam about 10 inches thick. The subsoil is mottled grayish-brown, dark-brown, and yellowish-brown silt loam that extends to a depth of about 18 inches. Underlying the subsoil is dominantly gray, friable silt loam. Included in mapping were a few small areas of Collins silt loam, local alluvium, and a few small sandy spots.

This Falaya soil is strongly acid, is medium in natural fertility, and has high available water capacity. Water enters this soil slowly and moves through it at a moderate rate.

This soil is mostly in cultivated crops or in pasture. It generally produces favorable yields of the crops commonly grown in the county. It is in small, generally long and narrow areas, where the use of large machinery is somewhat restricted. Occasionally, this soil is flooded during a heavy rain, but flooding lasts only a short time and damages crops only slightly. (Capability unit IIw–3; woodland group 7)

Forestdale Series

The Forestdale series is made up of poorly drained soils that were formed in low, nearly level areas on the alluvial plain of the Mississippi River. The main layers of a typical profile are—

0 to 6 inches, very dark grayish-brown, friable silty clay loam.
6 to 31 inches, grayish-brown, firm silty clay with common yellowish-brown mottles and a few strong-brown mottles.
31 to 48 inches, gray, firm silty clay loam with many yellowish-brown and strong-brown mottles.

Forestdale silty clay loam (0 to 2 percent slopes) (Fo).—This soil is poorly drained and occurs in low, nearly level areas on the alluvial plain of the Mississippi River. It has a surface layer of very dark grayish-brown, friable silty clay loam about 6 inches thick. The subsoil is mainly grayish-brown to gray silty clay or clay. It extends to a depth of about 31 inches and is underlain by gray silty clay loam.

This soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium or high available water capacity. Infiltration and permeability are slow.

This soil is mostly in cultivated crops or in pasture. It is suited to most of the crops commonly grown in the county, but preparing the seedbed and planting crops are often delayed in spring by wetness. Flooding, however, is infrequent, lasts only a short time, and damages crops only slightly. (Capability unit IIIw–3; woodland group 4)

Gravel Pits

Gravel pits (Gp) consist of excavations from which gravel has been removed for use in building highways and in other construction. These pits may contain water for sometime after a rain, and some of them have a few scattered trees. (Not placed in a capability unit or woodland group)

Grenada Series

In the Grenada series are moderately well drained silty soils that have a fragipan. These soils were derived from thick beds of loess. They have slopes of 0 to 8 percent and occur throughout the county on ridgetops and gently sloping to moderately sloping ridges. The main layers of a typical profile are—

0 to 7 inches, grayish-brown or brown, friable silt loam.
7 to 22 inches, strong-brown or yellowish-brown, friable heavy silt loam.
22 to 45 inches, (fragipan) yellowish-brown, firm heavy silt loam with many light-gray and pale-brown mottles.
45 to 60 inches, yellowish-brown, friable silt loam with many pale-brown mottles.

Grenada silt loam, 0 to 2 percent slopes (GrA).—This moderately well drained soil occurs in the uplands on broad, nearly level ridgetops. It has a surface layer of dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil is strong-brown to yellowish-brown silt loam and has a fragipan at a depth of about 22 inches. The fragipan extends to a depth of 48 inches or more and consists of light yellowish-brown or yellowish-brown silt loam mottled with light gray and pale brown. It is generally firm and compact. Included in mapping were a few small areas of Calloway and Loring soils.

This soil is strongly acid, is medium in natural fertility, and has medium available water capacity. Water enters

the soil slowly, moves to the fragipan at a moderate rate, and moves slowly in the fragipan.

This soil is mostly in cultivated crops or in pasture. It is easy to work and to maintain in good tilth. If the soil is fertilized and well managed, it produces favorable yields of the crops commonly grown in the county. Runoff is slow, and the hazard of erosion is slight. (Capability unit IIw–1; woodland group 13)

Grenada silt loam, 2 to 5 percent slopes, eroded (GrB2).—This moderately well drained soil is on uplands. It occurs throughout the county on gently sloping ridgetops that are broad to medium in width. The surface layer is brown, friable silt loam about 3 to 5 inches thick. Tillage has exposed the subsoil. The subsoil is strong-brown to yellowish-brown silt loam to a depth of 20 inches. At that depth a fragipan begins and extends to 48 inches or more. The fragipan generally is firm and compact. Included in mapping were a few areas of Loring soils and some areas only slightly eroded.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Water enters this soil slowly and moves through it to the fragipan at a moderate rate. Its movement in the fragipan is slow.

This soil is mostly in cultivated crops or pasture. It is easy to work and to keep in good tilth. Yields are favorable if management, including fertilization, is good. Runoff is moderately rapid, and the hazard of erosion is moderate. (Capability unit IIe–2; woodland group 13)

Grenada silt loam, 2 to 5 percent slopes, severely eroded (GrB3).—Almost all of the original surface soil of this soil has been removed by erosion, and rills and a few shallow gullies have formed in most fields. The present surface layer is a mixture of the subsoil and the remnant of the original surface soil. It is dark yellowish-brown silt loam about 4 inches thick. The subsoil is strong-brown to yellowish-brown silt loam to a depth of about 18 inches. At that depth a generally firm, compact fragipan begins and extends to 48 inches or more. Included in mapping were a few small areas of Loring soils.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Water enters the surface slowly and moves to the fragipan at a moderate rate. Water moves slowly in the fragipan.

This soil is mainly in cultivated crops or in pasture. It is fairly easy to work, but it commonly crusts at the surface after a heavy rain. It is suited to most of the crops commonly grown and produces fairly favorable yields if well fertilized and otherwise well managed. Runoff is moderately rapid, and the hazard of erosion is moderate to severe. (Capability unit IIIe–2; woodland group 11)

Grenada silt loam, 5 to 8 percent slopes, eroded (GrC2).—This moderately well drained soil occurs on sloping ridges in the uplands. Its surface layer is brown, friable silt loam about 3 to 5 inches thick. In small eroded spots the subsoil is exposed. The subsoil is strong-brown to yellowish-brown silt loam that extends to a depth of about 20 inches. At that depth a fragipan begins and extends to 48 inches or more. The fragipan generally is firm and compact. Included in mapping were some areas that are only slightly eroded and a few small areas of Loring soils.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Water enters this soil slowly and moves down to the fragipan at a moderate rate. Its movement in the fragipan is slow.

This soil is mostly in cultivated crops or in pasture. It is easy to work and to maintain in good tilth. It is suited to most of the crops commonly grown in the county and produces fairly favorable yields if management, including fertilization, is good. The hazard of erosion is moderate to severe. (Capability unit IIIe–3; woodland group 13)

Grenada silt loam, 5 to 8 percent slopes, severely eroded (GrC3).—The plow layer of this soil is material from the subsoil mixed with the remnant of the original surface soil to form a dark yellowish-brown silt loam. The subsoil is strong-brown to yellowish-brown silt loam that reaches to a depth of about 18 inches. At that depth a fragipan begins and extends to 48 inches or more. Rills and a few shallow gullies are common in most fields, and some fields have one or two deep gullies. Included in mapping were a few small areas of Loring soils.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Water enters the soil slowly and moves down to the fragipan at a moderate rate. Its movement in the fragipan is slow.

This soil is mostly in cultivated crops or pasture. It is fairly easy to work, but it commonly crusts at the surface after a heavy rain. It is suited to most of the crops commonly grown in the county and produces fairly favorable yields where it is fertilized heavily and otherwise managed well. Because runoff is rapid, the hazard of erosion is severe. (Capability unit IVe–2; woodland group 11)

Guin Series

The Guin series consists of excessively drained soils of the uplands on the side slopes of hilly bluffs bordering or near the alluvial plain of the Mississippi River. These soils were derived from gravelly and sandy material of the Coastal Plain. The slopes range from 17 to 50 percent. The main layers of a typical profile are—

0 to 6 inches, dark-grayish to brown gravelly sandy loam; about 25 percent gravel.
6 to 30 inches, light yellowish-brown gravelly sand; about 40 percent gravel.
30 to 72 inches, red gravelly sandy clay loam; about 60 percent gravel.

In this county the Guin soils are mapped only in a complex with Memphis soils.

Gullied Land

Gullied land, clayey (Gs) is so eroded that, in many places, the soil profile has been destroyed. Only isolated spots and narrow fingerlike extensions of the original soils remain between the gullies. Deep gullies in an intricate pattern make up about 50 to 100 percent of most areas. The original soils were the Boswell, Cuthbert, and Tippah.

The material that washes from the gullies is dominantly clay, but about 20 percent is sand. Generally, the sand particles are deposited on the adjacent bottom lands, where they cause damage. The clay particles are carried downstream, where they are deposited in depressions, old sloughs, and slackwater areas. These clay particles cause

little damage, except where they are deposited on growing crops and pastures.

The soil material of this unit is acid and ranges from clay to sand in texture. Permeability and available water capacity vary, and natural fertility and the content of organic matter are low.

Reclaiming this land so that crops or pasture plants can be grown is not economically practical. This land type is better suited to pine trees. (Capability unit VIIe–2; woodland group 16)

Gullied land, sandy (Gt) is so eroded that, in many places, the soil profile has been destroyed. Deep gullies in an intricate pattern make up 50 to 100 percent of most areas. Only isolated spots and fingerlike extensions of the original soils remain between the gullies. The original soils were the Ruston and Providence.

The material washed from these gullies, mainly sand, has been deposited on the adjacent stream bottoms, where it damages the soils and lowers their productivity. If deposited during the growing season, these sandy sediments damage crops and pasture.

The soil material of this unit is acid and ranges from sand to silt loam in texture. Permeability is moderate, runoff is high, and natural fertility and the content of organic matter are low. The available water capacity varies.

Reclaiming this land so that crops or pasture can be grown is not economically practical. This land type is suitable for pine trees. (Capability unit VIIe–2; woodland group 16)

Gullied land, silty (Gu) is so eroded that, in many places, the soil profile has been destroyed. Deep gullies in an intricate pattern make up 50 to 100 percent of most areas. Only isolated islands and narrow fingerlike extensions of the original soils remain between the gullies. The original soils were the Memphis, Loring, and Grenada.

The silty sediments washed from the gullies are deposited on the adjacent stream bottoms. These sediments tend to improve the soils on bottom lands rather than to damage them, but crops and pasture are damaged if the sediments are deposited during the growing season.

The soil material of this unit is acid and ranges from silt loam to silty clay loam in texture. Permeability is moderate, and available water capacity and natural fertility vary. Runoff is rapid. Reclaiming this land so that it can be used for pasture is difficult and generally not economically practical. This land type is suited to pine trees. (Capability unit VIIe 2; woodland group 16)

Henry Series

In the Henry series are poorly drained silty soils that have a fragipan. These soils were derived from thick beds of loess. They occur throughout the county on low, nearly level uplands. The main layers of a typical profile are—

0 to 4 inches, dark grayish-brown, friable silt loam.
4 to 16 inches, (fragipan) gray or light-gray, friable silt loam mottled with grayish brown and pale yellow.
16 to 41 inches, (fragipan) mottled pale-olive and light-gray, firm, compact heavy silt loam.
41 to 60 inches, light yellowish-brown, firm silt loam mottled with light gray.

Henry silt loam (0 to 2 percent slopes) (He).—This poorly drained soil occurs on uplands throughout the county. Its surface layer is very dark grayish-brown to brown, friable silt loam, and the subsoil is gray or mottled gray silt loam to silty clay loam. A fragipan begins at a depth between 4 and 16 inches and extends to 48 inches or more. Included in mapping were a few small areas that have an overwash of brown silt loam 4 or 5 inches thick.

This soil is strongly acid, is medium or low in natural fertility, and has low available water capacity. Infiltration and permeability are slow.

This soil is wet in the spring. It is poorly suited to most of the crops commonly grown in the county but produces fairly good pasture if fertilizer is added and other management is good. (Capability unit IIIw–1; woodland group 9)

Loring Series

In the Loring series are well-drained silty soils that have a fragipan. These soils were derived from thick beds of loessal material on uplands. They occur on ridgetops and hillsides in the central and western parts of the county. Slopes range from 0 to 40 percent but are dominantly 2 to 12 percent. The main layers of a typical profile are—

0 to 6 inches, brown, friable silt loam.
6 to 29 inches, brown, friable to firm silty clay loam.
29 to 60 inches, (fragipan) brown, friable to firm silt loam mottled with light gray, gray, and light yellowish brown.

Loring silt loam, 0 to 2 percent slopes (LoA).—This well-drained soil is on broad, nearly level ridges in the western part of the county. It has a surface layer of brown silt loam about 7 inches thick. The subsoil consists of strong-brown silty clay loam or heavy silt loam and has a fragipan at a depth of about 27 inches. Included in mapping were a few small areas of Grenada soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate to slow.

This soil is mostly in cultivated crops and is easy to work and to maintain in good tilth. It produces favorable yields of the crops commonly grown in the county if it is well fertilized and otherwise well managed. (Capability unit I–1; woodland group 1)

Loring silt loam, 2 to 5 percent slopes, eroded (LoB2).—This well-drained soil occurs in the western part of the county on ridgetops that are broad to medium in width. It has a surface layer of dark grayish-brown to brown, friable silt loam about 3 to 5 inches thick. Where the surface layer is thin, tillage has exposed the subsoil, and in some fields small rills have formed. The subsoil is a strong-brown to dark-brown silty clay loam or silt loam to a depth of about 29 inches, where a fragipan begins and extends to 48 inches or more. Included in mapping were some areas that are only slightly eroded and a few small areas of Memphis soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate to slow.

This soil is in cultivated crops or in pasture. It is easy to work and produces favorable yields of the crops commonly grown in the county if management, including fertilization, is good. The hazard of erosion is moderate. (Capability unit IIe–1; woodland group 2)

Loring silt loam, 2 to 5 percent slopes, severely eroded (LoB3).—This well-drained soil occurs in the western part of the county on ridgetops that are narrow to medium in width. All of this soil has been cultivated and is severely eroded, and rills and shallow gullies have formed in most fields. The present surface layer consists of dark yellowish-brown heavy silt loam that is a mixture of material from the subsoil and remnants of the original surface soil. The subsoil is strong-brown to dark-brown silty clay loam or silt loam to a depth of about 28 inches. At that depth a fragipan occurs and extends to 48 inches or more. Included in mapping were a few small areas of Memphis soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate to slow.

This soil is mostly cultivated or in pasture. It is fairly easy to work but crusts at the surface after a heavy rain. This soil is suited to most of the crops commonly grown in the county and produces favorable yields if it is heavily fertilized and otherwise well managed. The hazard of erosion is moderate to severe. (Capability unit IIIe–1; woodland group 8)

Loring silt loam, 5 to 8 percent slopes, eroded (LoC2).—This well-drained soil is on sloping ridges in the central and western parts of the county. Most of the acreage has been cultivated, and a few rills and shallow gullies have formed in some fields. The surface layer is brown, friable silt loam about 3 to 5 inches thick. The subsoil is a strong-brown to dark-brown silty clay loam or silt loam to a depth of about 29 inches, where a fragipan begins and extends to 48 inches or more. Included in mapping were a few slightly eroded areas and a few small areas of Memphis soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate to slow.

This soil is mostly in cultivated crops or in pasture. It is easy to work and is suited to most of the crops commonly grown in the county. Runoff is moderately rapid, and the hazard of erosion is severe. (Capability unit IIIe–1; woodland group 2)

Loring silt loam, 5 to 8 percent slopes, severely eroded (LoC3).—All of this soil has been cultivated; a few shallow gullies have formed in most fields, and one or two deep gullies have formed in some fields. The surface layer is dark yellowish-brown heavy silt loam and consists of a mixture of material from the subsoil and remnants of the original surface soil. The subsoil is strong-brown to dark-brown silty clay loam or silt loam to a depth of about 26 inches. At that depth a fragipan occurs that extends to 48 inches or more. Included in mapping were a few small areas of Memphis soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is in pasture or in cultivated crops. It is fairly easy to work but crusts at the surface after a heavy rain. Most of the crops commonly grown in the county are suited to the soil and respond to good management. Runoff is rapid, and the hazard of erosion is severe. (Capability unit IIIe–1; woodland group 8)

Loring silt loam, 8 to 12 percent slopes, eroded (LoD2).—This well-drained soil occupies strongly sloping ridges in the central and western parts of the county. Most of the acreage has been cultivated, and rills and a few shallow gullies have formed in some fields. The surface layer is brown, friable silt loam, and the subsoil is strong-brown to dark-brown silty clay loam or silt loam. A fragipan occurs at a depth of about 29 inches. Included in mapping were small areas of Memphis soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate to slow.

Most of this soil is in pasture, some is idle, and some has been planted to trees in recent years. The soil is suited to most of the crops commonly grown in the county, but runoff is rapid and the hazard of erosion is very severe. (Capability unit IVe–1; woodland group 2)

Loring silt loam, 8 to 12 percent slopes, severely eroded (LoD3).—All of this soil has been cultivated to row crops. Most fields have shallow gullies, and some fields have one or two deep gullies. The surface layer is dark yellowish-brown heavy silt loam, and the subsoil is strong-brown to dark-brown silty clay loam or silt loam. A fragipan occurs at a depth of about 24 inches. Included in mapping were a few small areas of Memphis soils.

This soil is strongly acid, is medium in natural fertility, has high available water capacity, and has slow infiltration. Permeability is moderate above the fragipan but is slow within it.

Most of this soil is used for pasture, some is idle, and some has been recently planted to pine trees. This soil is suited to most of the crops commonly grown in the county, but rapid runoff causes a very severe hazard of erosion. (Capability unit IVe–1; woodland group 8)

Memphis Series

The Memphis series consists of well-drained silty soils that were derived from thick beds of loess. These soils are on ridgetops and hillsides mainly in the western part of the county. Slopes range from 0 to 50 percent. The main layers of a typical profile are—

0 to 7 inches, dark-brown, friable silt loam.
7 to 42 inches, brown, friable to firm silty clay loam or heavy silt loam.
42 to 58 inches, strong-brown, friable silt loam.
58 to 80 inches, yellowish-brown, friable silt loam.

Memphis silt loam, 0 to 2 percent slopes (MeA).—This well-drained soil occurs on broad nearly level ridgetops in the western part of the county. Its surface layer is dark grayish-brown or dark-brown to brown, friable silt loam about 6 to 10 inches thick, and its subsoil is strong-brown to dark-brown silty clay loam or silt loam. The underlying material is brown to yellowish-brown, friable silt loam that extends to a depth of 10 to 30 feet. Included in mapping were a few small areas of Loring soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mostly in cultivated crops or in pasture. It is easy to work and to keep in good tilth. This soil is suited to the crops commonly grown in the county and produces favorable yields if it is well fertilized and otherwise well managed. (Capability unit I–1; woodland group 1)

Memphis silt loam, 2 to 5 percent slopes, eroded (MeB2).—This well-drained soil is in the western part of the county, where it occupies ridges that are broad to

medium in width. The surface layer is brown, friable silt loam about 3 to 5 inches thick. A few small rills have formed in most fields, and tillage has exposed the subsoil in some places. The subsoil consists of strong-brown to dark-brown silty clay loam or silt loam. Underlying the subsoil is brown to yellowish-brown silt loam that extends to a depth of 10 to 30 feet. Included in mapping were a few slightly eroded areas and a few small areas of Loring soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mostly in cultivated crops or in pasture. It is easy to work and to keep in good tilth. It produces favorable yields of the crops commonly grown in the county if it is well fertilized and otherwise well managed. Runoff and the hazard of erosion are moderate. (Capability unit IIe–1; woodland group 2)

Memphis silt loam, 5 to 8 percent slopes, severely eroded (MeC3).—This well-drained soil occurs on sloping ridges that are narrow to medium in width. At one time all of it was cultivated to row crops. Most fields have shallow gullies, and some have one or two deep gullies. The surface layer is dark yellowish-brown heavy silt loam. It is a mixture of material from the subsoil and the remnant of the original surface soil. The subsoil is strong-brown to dark-brown silty clay loam or silt loam. Included in mapping were some moderately eroded areas and a few small areas of Loring soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mostly in cultivated crops or in pasture. It is easy to work, but its surface crusts after a heavy rain. This soil is suited to most of the crops commonly grown in the county and generally produces favorable yields where it is heavily fertilized and otherwise managed well. Moderately rapid runoff creates a severe hazard of erosion. (Capability unit IIIe–1; woodland group 8)

Memphis silt loam, 8 to 12 percent slopes, severely eroded (MeD3).—This soil is on strongly sloping ridges. All of it has been cultivated to row crops. Most fields have shallow gullies, and some have a few deep gullies. The surface layer, about 3 inches thick, is dark yellowish-brown heavy silt loam. It is a mixture of material from the subsoil and remnants of the original surface soil. The subsoil consists of strong-brown to dark-brown silt loam or silty clay loam. Included in mapping were a few moderately eroded areas and a few small areas of Loring soils.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

Most of this soil is in pasture, some is idle, and some has been recently planted to pine trees. This soil produces good pasture where it is well fertilized and otherwise well managed. Runoff is rapid, and the hazard of erosion is very severe. (Capability unit IVe–1; woodland group 8)

Memphis silt loam, 12 to 17 percent slopes (MeE).—This well-drained soil occurs on steep ridges in the western part of the county. It has a surface layer of very dark grayish-brown to brown, friable silt loam about 6 to 10 inches thick. The subsoil is strong-brown to dark-brown silty clay loam or silt loam.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mostly in hardwood forest. It is not suited to cultivated crops but produces good pasture where it is fertilized and otherwise well managed. Because the slopes are steep, runoff is rapid and the hazard of erosion is very severe. (Capability unit VIe–1; woodland group 1)

Memphis silt loam, 12 to 17 percent slopes, eroded (MeE2).—This well-drained soil occupies steep ridges. All of the acreage has been cleared and was cultivated or used for pasture. Most fields have rills and a few shallow gullies, and some fields have a few deep gullies. The surface layer consists of brown, friable silt loam about 3 to 5 inches thick, and the subsoil is strong-brown to dark-brown silty clay loam or silt loam. Included in mapping were a few areas of severely eroded soil.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mostly in pasture and produces a good stand of grass where it is well fertilized and otherwise well managed. It is not suited to cultivated crops. Some areas have been planted to pine trees in recent years. Because the slopes are steep, runoff is rapid and the hazard of erosion is very severe. (Capability unit VIe–1; woodland group 2)

Memphis silt loam, 17 to 40 percent slopes (MeF).—This well-drained soil occurs in the rough hilly areas bordering the alluvial plain of the Mississippi River. It has a surface layer of very dark grayish-brown to brown, friable silt loam about 6 to 10 inches thick. The subsoil consists of strong-brown to dark-brown silty clay loam or silt loam.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mostly in hardwood forest. It is not suited to cultivated crops but produces good pasture. Where this soil is used for pasture, good management is needed to retard the loss of soil. Because the slopes are steep, runoff is very rapid and the hazard of erosion is very severe. (Capability unit VIe–1; woodland group 12)

Memphis silt loam, 17 to 50 percent slopes, severely eroded (MeF3).—This well-drained soil was formerly cultivated. Shallow gullies are common in most fields, and a few deep gullies have formed in some fields. The surface layer consists of a mixture of material from the subsoil and remnants of the original surface layer. It is about 3 inches thick. The subsoil is strong-brown to dark-brown silty clay loam or silt loam. Included in mapping were a few moderately eroded areas.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

More than half of this soil is in pasture. Cultivated crops are not suited, but fairly good pasture can be grown if it is heavily fertilized. Good management of the pasture is needed to retard the loss of soil, for the steep slopes and very rapid runoff cause a very severe hazard of erosion. In recent years pine trees have been planted in some areas. (Capability unit VIIe–1; woodland group 14)

Memphis-Guin complex, 17 to 50 percent slopes (MgF).—This mapping unit is on narrow, winding ridges and very steep, choppy side slopes that are cut by many drainageways. It is on hilly bluffs bordering the alluvial plain of the Mississippi River in the western part of the county. About 50 percent of this complex is Memphis soil, and about 45 percent is Guin soil. The rest consists of well-drained silty and gravelly soils in narrow bands that are transitional between the Memphis soil and the Guin soil. The main soils of this unit occur in a uniform pattern. Each area contains Memphis and Guin soils in about the percentages given.

The well-drained silty Memphis soil occurs on the ridgetops and the upper parts of the slopes. Its surface layer is dark grayish-brown to brown, friable silt loam about 6 to 10 inches thick. Its subsoil consists of strong-brown to dark-brown silty clay loam or silt loam.

The Memphis soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

The excessively drained gravelly Guin soil occupies the middle and lower parts of the slopes. Its surface layer consists of dark grayish-brown to brown gravelly sandy loam or gravelly fine sandy loam about 6 inches thick. Its subsoil is light yellowish-brown to red gravelly sand to gravelly sandy clay loam. A profile typical of Guin soils is described for the Guin series.

The Guin soil is strongly acid to very strongly acid, is low in natural fertility, and has low available water capacity. Infiltration and permeability vary.

Almost all of this complex is in hardwood forest. The soils are not suitable for cultivated crops or pasture. The Guin soil is a good source of gravel. (Capability unit VIIe–6; woodland group 22)

Mixed Alluvial Land

Mixed alluvial land (0 to 3 percent slopes) (Mx) is on bottom lands and consists of recent alluvium washed from areas of loess and sandy material of the Coastal Plain. The soil material varies in texture and in thickness and consists of layers of silty and sandy material. The sandy material ranges from sand to sandy loam in texture, and the silty material is generally silt loam. In a few places a small amount of gravel is also present.

The soil material of this land type is strongly acid to very strongly acid. The available water capacity, natural fertility, infiltration, and permeability vary a great deal.

This land type is used mainly for pasture, but a small acreage is in row crops. Heavy applications of fertilizer and other good management are needed to produce favorable yields of crops and pasture. (Capability unit IIIw–5; woodland group 15)

Providence Series

In the Providence series are moderately steep to very steep, well-drained soils that have a fragipan. These soils were derived from a thin layer of loess overlying sandy material of the Coastal Plain. They are on ridgetops and side slopes of the uplands in the eastern and central parts of the county. The main layers of a typical profile are—

0 to 5 inches, brown, friable silt loam.
5 to 24 inches, strong-brown silty clay loam.
24 to 32 inches, (fragipan) strong-brown silt loam distinctly mottled with light gray and light yellowish brown.
32 to 46 inches, strong-brown sandy loam distinctly mottled with pale brown and light brownish gray and pale brown.
46 to 60 inches, yellowish-red loamy sand prominently mottled with light yellowish brown.

Providence silt loam, 5 to 8 percent slopes, eroded (PrC2).—This well-drained soil occurs on sloping ridges and narrow ridgetops. Most of it has been cultivated. Rills and a few small, severely eroded spots are common in most fields, and a few shallow gullies have formed in some. The surface layer is grayish-brown or brown, friable silt loam about 3 to 5 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam or silt loam. A fragipan begins at a depth of about 24 inches, is about 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam. Included in mapping were a few slightly eroded areas and a few small areas of Loring soils.

This soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

This soil is mostly in cultivated crops or in pasture. It is suited to most of the crops commonly grown in the county and produces favorable yields if fertilized and otherwise well managed. Runoff is moderately rapid, and the hazard of erosion is moderate to severe. (Capability unit IIIe–3; woodland group 13)

Providence silt loam, 5 to 8 percent slopes, severely eroded (PrC3).—This well-drained soil is mainly in the eastern part of the county, where it occupies sloping ridges and narrow ridgetops. All of it has been cultivated to row crops. Shallow gullies are common in most fields, and one or two deep gullies have formed in some. The surface layer is a dark yellowish-brown silt loam about 3 inches thick. It is a mixture of material from the subsoil and remnants of the original surface soil. The subsoil is strong-brown to yellowish-red silty clay loam or silt loam. A fragipan begins at a depth of about 20 inches, is about 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam. Included in mapping were a few small areas of Loring soils.

This soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

This soil is mostly in cultivated crops or in pasture. It is fairly easy to work, but its surface crusts after a heavy rain. This soil produces fairly favorable yields of the crops commonly grown in the county if it is heavily fertilized and otherwise well managed. Runoff is moderately rapid, and the hazard of erosion is severe. (Capability unit IVe–2; woodland group 11)

Providence-Loring association, hilly (17 to 45 percent slopes) (PaF).—This mapping unit occupies narrow, winding ridgetops and very steep side slopes that are cut by many short drainageways. It is on hilly uplands in the central part of the county. Providence soil accounts for about 34 percent of this unit; Loring soil, about 19 percent; and Ruston soil, about 17 percent. Well drained Memphis soil makes up 8 percent, moderately well drained Cuthbert soil amounts to 7 percent, and moderately well drained Collins and other soils in the narrow drainageways

make up 5 percent. The rest of this unit consists of moderately well drained Tippah soil and other minor soils that are well drained.

The Providence, Loring, and Ruston soils occur in a fairly uniform pattern. Each area contains these main soils and generally one or more of the minor soils. Included in mapping were a few eroded areas that were formerly cultivated.

The well-drained Providence soil is on the narrow ridgetops and the upper parts of the slopes. In these places the covering of loess is less than 48 inches thick over sandy material. The surface layer is dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam to silt loam. A fragipan begins at a depth of about 26 inches, is about 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam.

This soil is strongly acid or very strongly acid. is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate to slow.

The well-drained Loring soil occurs on the slightly broader ridgetops and on the upper parts of the slopes. In these places the covering of loess is 48 inches thick or more. The surface layer is dark grayish-brown to brown, friable silt loam. The subsoil, to a depth of about 31 inches, consists of strong-brown to dark-brown silty clay loam or heavy silt loam. At that depth a fragipan begins that extends to a depth of 48 inches or more. A profile typical of Loring soils is described for the Loring series.

This Loring soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate or slow.

The well-drained Ruston soil is mainly on the lower parts of the slopes. Its surface layer is dark grayish-brown to yellowish-brown, very friable fine sandy loam about 8 to 12 inches thick. The subsoil is strong-brown to red sandy clay loam or loam that extends to a depth of about 40 inches. Below the subsoil is yellowish-brown to red loamy sand to sandy clay loam. A profile typical of Ruston soils is described for the Ruston series.

This Ruston soil is strongly acid or very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are moderate.

Almost all of this mapping unit is in pine and hardwood forest. Woodland is suitable, but cultivated crops or pasture is not. Because the topography is hilly, runoff is very rapid and erosion is a very severe hazard. (Capability unit VIIe–3; woodland group 23)

Providence-Loring complex, 8 to 12 percent slopes, eroded (PcD2).—The soils of this complex occur on uplands in the central part of the county. Most of this unit has been cultivated. In some places the subsoil is exposed in rills and shallow gullies, and in a few fields one or two deep gullies have formed. Providence soil accounts for about 50 percent of this complex, and Loring soil amounts to about 40 percent. Of the minor soils, Grenada makes up about 8 percent of this unit and Tippah makes up about 2 percent.

The main soils of this unit occur in a fairly uniform pattern. Each area contains Providence and Loring soils and generally one of the minor soils. Included in mapping were a few severely eroded areas.

The well-drained Providence soil is on the middle and lower parts of the slopes where the covering of loess is less than 48 inches thick. The surface layer is grayish-brown to brown, friable silt loam about 3 to 5 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam or silt loam. A fragipan begins at a depth of 24 inches, is about 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam.

This soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The well-drained Loring soil is on the upper parts of the slopes and the slightly broader ridgetops. In these places the covering of loess is 48 inches thick or more. The surface layer is a grayish-brown to brown, friable silt loam about 3 to 5 inches thick. The subsoil is strong-brown to dark-brown silty clay loam or silt loam. A fragipan occurs at a depth of about 29 inches and extends to 48 inches or more.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate or slow.

Much of this complex is in pasture, and some has been planted to pine trees. The soils produce good yields of pasture where management, including fertilization, is good. They are poorly suited to cultivated crops because runoff is rapid and the hazard of erosion is very severe. (Capability unit IVe–3; woodland group 18)

Providence-Loring complex, 12 to 17 percent slopes (PcE).—This complex is on narrow, winding ridgetops and steep side slopes that are cut by short drainageways. It is on uplands in the central part of the county. Providence soil accounts for about 50 percent of this complex, and Loring soil accounts for about 40 percent. Well-drained Memphis and Ruston soils each make up about 5 percent. The main soils of this unit occur in a fairly uniform pattern. Each area contains Providence and Loring soils and generally one or both of the minor soils.

The well-drained Providence soil is on the middle and lower parts of the slopes where the covering of loess is less than 48 inches thick. The surface layer of this soil is dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam or silt loam. A fragipan begins at a depth of about 26 inches, is about 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam.

This soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The well-drained Loring soil is on the upper parts of the slopes and the slightly broader ridgetops. In these places the covering of loess is 48 inches thick or more. The surface layer is a dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil is strong-brown to dark-brown silty clay loam or silt loam. A fragipan occurs at a depth of about 31 inches and extends to 48 inches or more.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate or slow.

Almost all of this complex is in pine and hardwood forest. The soils are suited to trees and produce fairly good pasture if management, including fertilization, is good. They are not suited to cultivated crops. Because the slopes are steep, runoff is rapid and the hazard of erosion is very severe. (Capability unit VIe–2; woodland group 18)

Providence-Loring complex, 12 to 17 percent slopes, eroded (PcE2).—This mapping unit is on steep uplands in the central part of the county. It occupies ridgetops that are narrow and winding and side slopes that are cut by short drainageways. Most of the acreage has been cultivated, and in some places the subsoil is exposed in rills and shallow gullies. One or two deep gullies have formed in a few fields. Providence soil accounts for about 50 percent of this complex, and Loring soil accounts for about 40 percent. Also in the complex are the well-drained Memphis and Ruston soils, each accounting for about 5 percent. The main soils of this unit occur in a fairly uniform pattern. Each area mapped contains Providence and Loring soils and generally one or both of the minor soils. Included in mapping were a few severely eroded areas.

The well-drained Providence soil is on the middle and lower parts of the slopes where the covering of loess is less than 48 inches thick. The surface layer of this soil is grayish-brown to brown, friable silt loam about 3 to 5 inches thick. The subsoil is strong-brown to yellowish-red silty clay loam or silt loam. A fragipan begins at a depth of about 24 inches, is 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam.

This soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The well-drained Loring soil is on the slightly broader ridgetops and upper part of the slopes. In these places the covering of loess is 48 inches thick or more. The surface layer is grayish-brown to brown, friable silt loam about 3 to 5 inches thick. The subsoil consists of strong-brown to dark-brown silty clay loam or heavy silt loam. A fragipan begins at a depth of about 29 inches and extends to 48 inches or more.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate or slow.

About half of this complex is in pasture, some is idle, and some has been planted to pine trees. The soils are not suited to cultivated crops, because they are steep. They are suited to trees and produce fairly good yields of pasture if they are heavily fertilized and otherwise well managed. Runoff is rapid, and the hazard of erosion is very severe. (Capability unit VIe-2; woodland group 18)

Ruston Series

In the Ruston series are well-drained soils that were derived from sandy material of the Coastal Plain. These soils are mostly in the hilly uplands on side slopes of 12 to 50 percent. The main layers of a typical profile are—

0 to 16 inches, dark grayish-brown to yellowish-brown, very friable fine sandy loam.
16 to 40 inches, yellowish-red, friable sandy clay loam or loam.
40 to 60 inches, yellowish-red friable fine sandy loam.

Ruston-Cuthbert association, hilly (17 to 45 percent slopes) (RcF).—This mapping unit occupies narrow, winding ridgetops and very steep side slopes that are cut by many short drainageways. It is on rough, hilly uplands in the eastern part of the county. About 45 percent of this unit is Ruston soil, and about 29 percent is Cuthbert soil. Providence soil makes up about 13 percent, and moderately well drained Collins soil and other soils in narrow drainageways account for 5 percent. Other minor soils include moderately well drained silty Tippah soil, moderately well drained clayey Boswell soil, and sandy soils. Also included are a few small areas of excessively drained, sandy soils and a few areas of moderately well drained soils that have a fragipan.

The main soils of this unit occur in a fairly uniform pattern. Each area contains Ruston and Cuthbert soils and generally one or more of the minor soils. Included in mapping were a few eroded areas that were formerly cultivated.

The well-drained Ruston soil generally is on the very steep middle and upper parts of the slopes and, in some places, on the narrow ridgetops. The surface layer is dark grayish-brown to yellowish-brown, very friable fine sandy loam or sandy loam about 8 to 18 inches thick. The subsoil consists of strong-brown to red, friable sandy clay loam to loam. Underlying the subsoil is yellowish-brown to red loamy sand to sandy clay loam.

This Ruston soil is very strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration and permeability are moderate.

The moderately well drained Cuthbert soil generally is on the middle and lower parts of the slopes and, in some places, is on sharp breaks above the heads of drainageways. It has a surface layer of dark grayish-brown to brown, very friable fine sandy loam about 4 to 8 inches thick. Its subsoil is a strong-brown to red, firm clay loam to clay. Underlying the subsoil is clay shale or thinly layered clay and sand. A profile typical of Cuthbert soils is described for the Cuthbert series.

This soil is very strongly acid, is low in natural fertility, and has medium or low available water capacity. Infiltration is moderate or slow, and permeability is slow.

The well-drained Providence soil is on narrow ridgetops where there is a thin covering of loess. The surface layer is dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam or heavy silt loam. A fragipan begins at a depth of about 24 inches, is about 1 to 3 feet thick, and is underlain by sandy material. A profile typical of Providence soils is described for the Providence series.

This Providence soil is strongly acid, is medium in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

Almost all of this mapping unit is in pine and hardwood forest. Although woodland is a suitable use, cultivated crops or pasture is not. Because the slopes are steep, runoff is very rapid and erosion is a very severe hazard. (Capability unit VIIe–4; woodland group 25)

Ruston-Providence association, hilly (17 to 45 percent slopes) (RpF).—This mapping unit occupies narrow, winding ridgetops and very steep side slopes that are cut by many short drainageways. It is on hilly uplands in the northeastern part of the county. Ruston soil accounts for 36 percent of this unit; Providence soil, 28 percent; and Cuthbert soil, 12 percent. Also in this unit are smaller areas of many other soils. Moderately well drained Collins soil, in narrow drainageways, makes up 5 percent, and other soils formed in alluvium amount to 10 percent. Other minor soils include moderately well drained silty Tippah soil, moderately well drained clayey Boswell soil, and well drained silty Loring soil. Also included are a few small areas of excessively drained, sandy soils and a few areas of moderately well drained soils that have a fragipan.

The main soils of this unit occur in a fairly uniform pattern. Each area mapped contains Ruston, Providence, and Cuthbert soils and generally one or more of the minor soils. Included in mapping were a few eroded areas that were formerly cultivated.

The well-drained Ruston soil occupies the middle and lower parts of the slopes. It has a surface layer of dark grayish-brown to yellowish-brown, very friable fine sandy loam about 8 to 16 inches thick. Its subsoil is yellowish-red sandy clay loam. Below the subsoil is yellowish-brown to red loamy sand to sandy clay loam.

This soil is very strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration and permeability are moderate.

The well-drained Providence soil is on the narrow ridgetops and on upper parts of the slopes where there is a thin covering of loess. Its surface layer is dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil is strong-brown silty clay loam or silt loam. A fragipan begins at a depth of about 26 inches, is about 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam. A profile typical of Providence soils is described for the Providence series.

This Providence soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity.

The moderately well drained Cuthbert soil generally occurs on the upper parts of the slopes on sharp breaks above the heads of drainageways. It has a surface layer of dark grayish-brown to yellowish-brown, friable fine sandy loam about 6 to 8 inches thick. The subsoil consists of yellowish-red or red, firm clay loam to clay. Underlying the subsoil is thinly layered clay and sand, or clay shale.

This Cuthbert soil is very strongly acid, is low in natural fertility, and has medium or low available water capacity.

Almost all of this mapping unit is in pine and hardwood forest. Although woodland is a suitable use, cultivated crops or pasture is not. Because the slopes are steep, runoff is very rapid and erosion is a very severe hazard. (Capability unit VIIe–3; woodland group 21)

Ruston-Providence complex, 12 to 17 percent slopes (RxE).—This complex occupies narrow, winding ridgetops and side slopes that are cut by many drainageways. It is on steep uplands, mainly in the northeastern part of the county. About 45 percent of this complex is Ruston soil, and about 40 percent consists of Providence soil. Moderately well drained clayey Cuthbert soil makes up about 10 percent, and moderately well drained silty Tippah soil accounts for about 5 percent.

The main soils of this complex occur in a fairly uniform pattern. Each area mapped contains Ruston and Providence soils and generally one or both of the minor soils.

The well-drained Ruston soil occupies the middle and lower parts of the slopes. It has a surface layer of dark grayish-brown to yellowish-brown, very friable fine sandy loam about 8 to 16 inches thick. Its subsoil is yellowish-red, friable sandy clay loam. Below the subsoil is yellowish-brown to red loamy sand to sandy clay loam.

This soil is very strongly acid, is medium or low in natural fertility, and has medium available water capacity.

The well-drained Providence soil occurs on narrow ridgetops and on the upper parts of the slopes where there is a thin covering of loess. The surface layer is dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil consists of strong-brown silty clay loam or heavy silt loam. A fragipan begins at a depth of about 26 inches, is about 1 to 3 feet thick, and is underlain by brown to red loamy sand to sandy clay loam.

This soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity.

Almost all of this unit is in pine and hardwood forest. The soils are not suited to cultivated crops or pasture but are suited to trees. Because the slopes are steep, runoff is rapid and the hazard of erosion is very severe. (Capability unit VIe–3; woodland group 20)

Ruston-Providence complex, 12 to 17 percent slopes, eroded (RxE2).—This complex occupies narrow, winding ridgetops and steep side slopes that are cut by short drainageways. It is on uplands, mainly in the northeastern part of the county. Ruston soil accounts for 45 percent of this complex, and Providence soil accounts for 40 percent. About 10 percent of the complex is moderately well drained Cuthbert soil, and about 5 percent is moderately well drained Tippah soil and somewhat poorly drained Boswell soil. Ruston and Providence soils and generally one or more of the minor soils occur in a fairly uniform pattern in each area mapped.

The well-drained Ruston soil occupies the middle and lower parts of the slopes. It has a surface layer of grayish-brown to brown, friable silt loam about 4 to 6 inches thick. Its subsoil is yellowish-red, friable sandy clay loam. Underlying the subsoil is yellowish-brown to red loamy sand to sandy clay loam. In some places small fragments of sandstone occur on the surface and throughout the profile.

This Ruston soil is very strongly acid, is medium or low in natural fertility, and has medium available water capacity.

The well-drained Providence soil occurs on the narrow ridgetops and on the upper parts of the slopes where there is a thin covering of loess. It has a surface layer of brown, friable silt loam, and a subsoil of strong-

brown silty clay loam or heavy silt loam. A fragipan begins at a depth of about 24 inches, is about 1 to 3 feet thick, and is underlain by yellowish-brown to red loamy sand to sandy clay loam.

This Providence soil is strongly acid or very strongly acid, is medium in natural fertility, and has medium available water capacity.

Much of this complex has been planted to pine trees, some is idle, and some is in pasture. Although pine trees grow well, cultivated crops and pasture plants do not. Because the slopes are steep, runoff is rapid and erosion is a very severe hazard. (Capability unit VIe–3; woodland group 20)

Sandy Alluvial Land

Sandy alluvial land (Sa) consists of alluvium recently washed from sandy areas of the Coastal Plain and deposited along the Yalobusha River during periods of overflow. This material is excessively drained and, to a depth of several feet, ranges from sand to loamy sand.

This land type is generally adjacent to Collins and Vicksburg soils on the alluvial plain of the Yalobusha River, but it is much sandier than those soils. The soil material is very strongly acid and has low natural fertility and available water capacity. Infiltration and permeability are rapid.

At one time most of this land was farmed. Some of it is now used for pasture, but a large part has reverted to willow and cottonwood trees. (Capability unit Vw 2; woodland group 17)

Sand Pits

Sand pits (Sp) consist of excavations from which sand and other sandy materials have been removed for road fills, road topping, and other building purposes. These pits may fill with water during rains. A few trees grow in some of them. (Not placed in a capability unit or woodland group)

Tippah Series

The Tippah series consists of moderately well drained soils that were derived from a thin layer of loess over plastic clay of the Coastal Plain. These soils have slopes of 12 to 40 percent and occupy hilly uplands in the eastern part of the county. The main layers of a typical profile are—

0 to 6 inches, dark grayish-brown to brown, friable silt loam.
6 to 16 inches, yellowish-red, firm silty clay loam.
16 to 20 inches, strong-brown, firm silty clay loam.
20 to 34 inches, red, plastic clay prominently mottled with pale brown, light gray, and yellowish brown.
34 to 46 inches, pale-olive, very plastic clay prominently mottled with gray and red.

Tippah-Boswell complex, 8 to 12 percent slopes (TbD).—This complex occupies narrow ridgetops and fairly long side slopes. It is on uplands in the eastern part of the county. Tippah soil accounts for 55 percent of this complex, and Boswell soil accounts for 40 percent. The rest is moderately well drained silty Dulac soil. The main soils of this complex occur in a fairly uniform pattern. Each area mapped consists mainly of Tippah and Boswell soils, and some areas also contain Dulac soil.

The moderately well drained Tippah soil occurs on the narrow ridgetops and on the upper parts of the slopes. It has a surface layer of very dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam that extends to about 20 inches. Underlying the subsoil is plastic clay mottled with shades of red, gray, brown, yellow, and olive.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The moderately well drained Boswell soil occupies sharp breaks and the lower part of the slopes. Its surface layer is dark grayish-brown to brown, very friable fine sandy loam about 4 inches thick. The subsoil consists of red, plastic clay that extends to a depth of about 18 inches. Below the subsoil is very plastic clay mottled with shades of red, gray, brown, and yellow. A profile typical of Boswell soils is described for the Boswell series.

The Boswell soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are slow.

This complex is almost entirely in pine and hardwood forest. It is poorly suited to cultivated crops but produces fairly good pasture if it is heavily fertilized and otherwise well managed. Runoff is rapid, and the hazard of erosion is very severe. (Capability unit VIe–4; woodland group 19)

Tippah-Boswell complex, 8 to 12 percent slopes, eroded (TbD2).—This complex is on uplands in the eastern part of the county. Most of the acreage has been cultivated. Rills and small severely eroded spots are common in most fields, and a few shallow gullies have formed in some fields. Tippah soil accounts for about 55 percent of this complex, and Boswell soil accounts for about 40 percent. The rest is moderately well drained Dulac soil. The main soils of this complex occur in each area mapped in a fairly uniform pattern. The Dulac soil occurs in some areas, but not all. Included in the mapping are a few severely eroded areas.

The moderately well drained Tippah soil occupies the narrow ridgetops and the upper parts of the slopes. It has a surface layer of brown, friable silt loam about 2 to 5 inches thick. Its subsoil consists of strong-brown to yellowish-red silty clay loam to about 16 inches. Underlying the subsoil is plastic clay mottled with shades of red, gray, brown, yellow, and olive.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The moderately well drained Boswell soil occurs on sharp breaks and on the lower parts of the side slopes. It has a surface layer of brown, friable fine sandy loam or loam about 2 inches thick. The subsoil consists of red, plastic clay that extends to a depth of about 12 or 13 inches. Below the subsoil is very plastic clay mottled with red, gray, brown, and yellow.

This soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are slow.

Much of this complex is in pasture, but some has been planted to pine trees. The soils of this unit produce fairly good pasture if they are fertilized and otherwise well managed. They are poorly suited to cultivated

crops. Runoff is rapid, and erosion is a very severe hazard. (Capability unit VIe–4; woodland group 19)

Tippah-Boswell complex, 12 to 17 percent slopes (TbE).—This complex occupies narrow, winding ridgetops and fairly long side slopes. It is on uplands in the eastern part of the county. Tippah soil accounts for about 55 percent of this complex, and Boswell soil accounts for about 40 percent. The rest is moderately well drained Dulac soil. The main soils of this complex occur in each area mapped in a fairly uniform pattern. The Dulac soil is in some areas, but not all.

The moderately well drained Tippah soil occupies the narrow ridgetops and the upper parts of the slopes. It has a surface layer of a very dark grayish-brown to brown, friable silt loam about 6 to 8 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam that extends to a depth of about 20 inches. Underlying the subsoil is plastic clay mottled with shades of red, gray, brown, yellow, and olive.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The moderately well drained Boswell soil occurs on the lower parts of the side slopes. It has a surface layer of dark grayish-brown to brown, friable fine sandy loam about 4 inches thick. Its subsoil consists of red, plastic clay that extends to a depth of about 18 inches. Below the subsoil is very plastic clay mottled with shades of red, gray, brown, and yellow.

This soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are slow.

Almost all of this soil complex is in pine and hardwood forest. Cultivated crops are not suited, but fairly good pasture is produced if the soils are heavily fertilized and otherwise well managed. Because the slopes are steep, runoff is rapid and erosion is a very severe hazard. (Capability unit VIe–4; woodland group 19)

Tippah-Boswell complex, 12 to 17 percent slopes, eroded (TbE2).—This complex occurs on steep uplands in the eastern part of the county. Most of the acreage has been cultivated or used for pasture. Rills and small severely eroded spots are common in most fields, and a few shallow gullies have formed in some. Tippah soil accounts for about 55 percent of this complex, and Boswell soil accounts for about 40 percent. The rest is moderately well drained Dulac soil. The main soils of this unit occur in a fairly uniform pattern in each area mapped. The Dulac soil occurs in some areas, but not all. Included in the mapping are a few severely eroded areas.

The moderately well drained Tippah soil occurs on the narrow ridgetops and on the upper parts of the slopes. Its surface layer is brown, friable silt loam about 2 to 5 inches thick. The subsoil consists of strong-brown to yellowish-red silty clay loam that extends to a depth of about 16 inches. Underlying the subsoil is plastic clay mottled with shades of red, gray, brown, yellow, and olive.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The moderately well drained Boswell soil is on the lower parts of the slopes. It has a surface layer of brown, friable fine sandy loam or loam about 2 inches thick. The subsoil consists of uniformly red plastic clay that extends to a depth of about 12 inches. Below the subsoil is very plastic clay mottled with shades of red, gray, brown, and yellow.

This soil is very strongly acid, is low in natural fertility, and has medium available water capacity. Infiltration and permeability are slow.

More than half of this soil complex has been planted to pine trees, some is idle, and some is in pasture. Cultivated crops are not suited, but pine trees grow well. Because the slopes are steep, runoff is rapid and erosion is a very severe hazard. (Capability unit VIe-4; woodland group 19)

Vicksburg Series

In the Vicksburg series are well-drained soils that were derived from silty alluvium. These soils are on nearly level stream bottoms. The main layers of a typical profile are—

0 to 6 inches, yellowish-brown, very friable silt loam.
6 to 36 inches, brown, friable silt loam.
36 to 60 inches, thinly stratified brown and pale-brown, friable silt loam with common, light-gray mottles.

Vicksburg silt loam (0 to 2 percent slopes) (Vb).—This well-drained soil is on first bottoms along the larger streams. Its surface layer is brown or yellowish-brown, very friable silt loam about 6 to 10 inches thick. The subsoil consists of brown to dark-brown, friable silt loam that extends to a depth of about 36 inches. Below the subsoil is mottled brown and gray or light-gray, friable silt loam. Included in mapping were a few small areas of Collins soil.

This Vicksburg soil is strongly acid, is medium in natural fertility, and has high available water capacity. Water enters the soil and moves through it at a moderate rate.

This soil is mainly in cultivated crops or in pasture. It is easy to maintain in good tilth, and it can be cultivated within a wide range in moisture content. This soil is suited to the crops commonly grown in the county and produces high yields if management, including fertilization, is good. (In areas protected by diversions and major structures for flood control, this soil is in capability unit I–2; in unprotected areas, this soil is in capability unit IIw–2; all areas are in woodland group 3)

Vicksburg silt loam, local alluvium (1 to 3 percent slopes) (Vc).—This well-drained soil occurs on narrow U-shaped creek bottoms and along small drainageways near the heads of streams. These drainageways and narrow bottoms are generally above the floodwaters of the larger streams. The surface layer consists of brown, friable silt loam about 6 to 10 inches thick. The subsoil is brown to dark-brown, friable silt loam to a depth of about 32 inches. Below the subsoil is dark yellowish-brown or yellowish-brown, friable silt loam mottled with pale brown and light gray.

This soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

This soil is mainly in cultivated crops or in pasture. It is suited to the crops commonly grown in the county and produces good yields if management, including fertilization, is good. The soil is easy to maintain in good tilth and can be cultivated within a wide range in moisture content. Because the areas are small, the use of large machinery is somewhat restricted. Occasionally, during a heavy rain this soil is flooded by water from adjacent hills, but damage to crops is only slight because the floods do not last long. (Capability unit I–2; woodland group 3)

Waverly Series

The Waverly series consists of poorly drained soils on broad flats and in depressions. These soils were derived from silty alluvium on first bottoms. The main layers of a typical profile are—

0 to 5 inches, grayish-brown, friable silt loam mottled with strong brown and light brownish gray.
5 to 24 inches, light-gray, friable silt loam mottled with reddish yellow and yellow.
24 to 60 inches, gray friable silt loam mottled with light grayish brown and strong brown.

Waverly silt loam (0 to 2 percent slopes) (Ws).—This poorly drained soil on bottom lands has a surface layer of grayish-brown, friable silt loam about 2 to 6 inches thick. Its subsoil consists of gray or light-gray, friable to firm silt loam or silty clay loam mottled with shades of yellow and brown.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

This soil is mostly in cultivated crops or in pasture. It produces good yields of pasture if management, including fertilization, is good, but it is poorly suited to cultivated crops. Preparing the seedbed and planting of crops are often delayed because this soil is wet in spring. Flooding in winter and early in spring generally lasts for only a short time, but damage to crops is moderate to severe. (Capability unit IIIw–2; woodland group 7)

Waverly-Falaya association (0 to 2 percent slopes) (Wf).—This mapping unit occurs on bottom lands of the Yalobusha River and on the east side of the alluvial plain of the Mississippi River, where it borders the loess hills. A dense growth of brush, briers, vines, and canes covers this area. Water is trapped in shallow lakes or sloughs in a few old stream channels that meander through the area and lack suitable outlets. Waverly soil accounts for about 80 percent of this unit, and Falaya soil accounts for the rest. These soils occur in a fairly uniform pattern.

The poorly drained Waverly soil occurs on broad flats and in depressions. Its surface layer is a very dark grayish-brown, friable silt loam about 4 inches thick. The subsoil consists of gray, friable to firm silt loam or silty clay loam mottled with shades of brown and yellow.

This soil is strongly acid, is medium or low in natural fertility, and has medium available water capacity. Infiltration is slow, and permeability is moderate or slow.

The somewhat poorly drained Falaya soil occupies the higher strips adjacent to old stream runs. It has a surface layer of dark grayish-brown to dark-brown, friable silt loam about 6 to 8 inches thick. The subsoil consists of dark-brown to yellowish-brown, friable silt loam that extends to a depth of about 14 inches. Underlying the subsoil is mainly gray silt loam mottled with shades of brown and yellow.

This Falaya soil is strongly acid, is medium in natural fertility, and has high available water capacity. Infiltration is slow, and permeability is moderate.

Almost all of this mapping unit is in hardwood forests. The soils are suited to pasture and to some of the crops commonly grown in the county, but a drainage system is needed to remove the excess water. The hazard of flooding is moderate to severe. Flooding occurs mainly in winter and spring, and the depressions are ponded for long periods. (Capability unit IVw–3; woodland group 7)

Use and Management of Soils

The soils of Grenada County are used extensively for cultivated crops and pasture. This section explains how the soils may be managed for these main purposes and gives the estimated yields of the principal crops grown under two levels of management. In addition, it explains how the soils can be managed as woodland, for wildlife, for recreation, and for building highways, farm ponds, irrigation systems, and other similar engineering structures.

Capability Groups of Soils

Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farming. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. The soils are classified according to degree and kind of permanent limitation, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soils; and without consideration of possible but unlikely major reclamation projects.

In the capability system, all kinds of soils are grouped at three levels, the capability class, subclass, and unit. These are discussed in the following paragraphs.

Capability Classes, the broadest grouping, are designated by Roman numerals I through VIII. As the numerals increase, they indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I. Soils have few limitations that restrict their use.
Class II. Soils have some limitations that reduce the choice of plants or require moderate conservation practices.
Class III. Soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
Class IV. Soils have very severe limitations that restrict the choice of plants, require very careful management, or both.
Class V. Soils subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, woodland, or wildlife food and cover.

Class VI. Soils that have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, woodland, or wildlife food and cover.

Class VII. Soils that have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.

Class VIII. Soils and landforms that have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, or water supply, or to esthetic purposes (none in Grenada County).

CAPABILITY SUBCLASSES are soil groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only subclasses indicated by *w*, *s*, and *c*, because the soils in it are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, woodland, wildlife, or recreation.

CAPABILITY UNITS are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an arabic numeral to the subclass symbol, for example, IIe–1 or IIIe–2. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation, and the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph. The arabic numeral specifically identifies the capability unit within each subclass.

Management by capability units

In the following pages, the capability units in Grenada County are described and suggestions for the use and management of the soils are given. The names of the soil series are mentioned in the description of each unit, but this does not mean that all the soils of a given series appear in the unit. To find the names of the soils in any given unit, refer to the "Guide to Mapping Units" at the back of this soil survey.

CAPABILITY UNIT I–1

In this capability unit are well-drained Memphis and Loring soils on nearly level uplands and terraces that are uneroded or only slightly eroded. These soils have a brownish, friable silt loam surface layer and a brownish silty clay loam subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. Loring silt loam, 0 to 2 percent slopes, has a weak fragipan and is about 2½ feet deep, but at that depth the fragipan restricts the growth of roots very little, if any.

The soils in this unit are easily worked, and they produce favorable yields of the commonly grown crops. Well-suited crops are cotton (fig. 2), corn, soybeans, grain sorghum, small grain, grasses, and legumes. Many kinds of cropping systems are suitable. Cultivated crops can be grown every year, or they can be grown in a cropping system that includes grasses and legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and increase infiltration. Crops respond well to fertilizer and lime. Surface water can be controlled by graded rows.

CAPABILITY UNIT I–2

In this capability unit are well drained and moderately well drained Cascilla, Collins, and Vicksburg soils on bottom lands. These soils have a brownish, friable silt loam surface layer and subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. Areas of these soils are protected by diversions and by major structures for flood control, and damage to crops from flooding is slight.

The soils in this unit are easily worked and generally produce favorable yields of the commonly grown crops. Suitable crops are cotton, corn, soybeans, grain sorghum, small grain, grasses, and legumes. These soils can be cultivated every year, and many kinds of cropping systems are suitable. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer and lime. The excessive surface water can be easily controlled by graded rows or surface field drains.

CAPABILITY UNIT IIe–1

In this capability unit are gently sloping, well-drained Loring and Memphis soils that are moderately eroded. These soils have a brownish, friable silt loam surface layer and a brownish silt loam or silty clay loam subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. The Loring soil has a weak fragipan at a depth of about 2½ feet, but at that depth the fragipan restricts the growth of roots only slightly.

The soils in this unit are easily worked and generally produce favorable yields of the commonly grown crops. Suitable crops are cotton, corn, soybeans, grain sorghum, small grain, grasses, and legumes. Although these soils erode readily, many cropping systems are suitable. One suitable system is 2 years of row crops and 2 years of grasses and legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer and lime.

CAPABILITY UNIT IIe–2

In this capability unit are gently sloping, moderately well drained Dulac and Grenada soils that are moderately eroded. These soils have a brownish, friable silt loam surface layer and a brownish silt loam or silty clay loam subsoil. They are strongly acid, are medium to low in natural fertility, and have medium available

Figure 2.—Harvesting cotton on Memphis silt loam, 0 to 2 percent slopes.

water capacity. At a depth of about 2 feet, these soils have a fragipan that slows the movement of water and restricts the growth of roots. Consequently, the subsoil is waterlogged during rainy periods, especially in winter and early in spring. During dry periods in summer, however, these soils are slightly droughty because the soil above the fragipan is thin.

The soils in this unit are easily worked and generally produce favorable yields of the commonly grown crops. Suitable crops are cotton, corn, soybeans, grain sorghum, small grain, Coastal bermudagrass, bermudagrass, bahiagrass, lespedeza, and white clover. Many cropping systems are suitable. An example is 2 years of row crops and 2 years of grasses and legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer.

CAPABILITY UNIT IIw-1

Grenada silt loam, 0 to 2 percent slopes, is the only soil in this capability unit. This moderately well drained soil has a brownish, friable silt loam surface layer, a brownish heavy silt loam subsoil, and a fragipan at a depth of about 2 feet. It is strongly acid, is medium to low in natural fertility, and has medium available water capacity. The subsoil is waterlogged during rainy periods, especially in winter and early in spring, because runoff is slow and the fragipan slows the movement of water through the profile. During dry periods in summer, however, this soil is slightly droughty because it is thin above the fragipan.

This soil is easily worked and normally produces good yields of the commonly grown crops. Cotton, corn, soybeans, grain sorghum, small grain, grasses (fig. 3), and legumes are suited. These crops can be grown in many kinds of cropping systems, and a row crop can be grown every year or in a cropping system that includes grasses and legumes. Crop residues shredded and left on the surface as a mulch help to increase infiltration and to maintain tilth. Crops respond well to fertilizer. The excessive surface water can be removed from this soil by installing surface field drains and by arranging the crop rows on a grade.

CAPABILITY UNIT IIw-2

This capability unit consists of moderately well drained and well drained Collins and Vicksburg soils on bottom lands. These soils have a brownish, friable silt loam surface layer and brownish silt loam subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. These soils are subject to flooding, generally about once each year. The floods normally last from 1 to 3 days and moderately damage crops.

The soils in this unit are easily worked and generally produce favorable yields of crops. Suitable crops are cotton, corn, soybeans, grain sorghum, small grain, grasses, and legumes. Many kinds of cropping systems

Figure 3.—Baled ryegrass on Grenada silt loam, 0 to 2 percent slopes. Capability unit IIw–1.

are suitable, and row crops can be grown every year. Crop residues shredded and left on the surface help to increase infiltration and to maintain tilth. Crops respond well to fertilizer and lime. The excessive surface water can be removed from these soils by surface field drains and a system of main and lateral ditches. In some areas diversions are needed to control water from adjacent hills.

CAPABILITY UNIT IIw-3

In this capability unit are somewhat poorly drained Falaya soils on bottom lands. These soils have a brownish, friable silt loam surface layer and a mottled brown and gray subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. These soils are subject to flooding, generally about once each year. Floods normally last 1 to 3 days and damage crops no more than moderately.

The soils in this unit are easily worked and generally produce favorable yields of the commonly grown crops. Suitable crops are cotton, corn, soybeans, grain sorghum, small grain, grasses, and legumes. Many kinds of cropping systems are suitable, and a row crop can be grown every year. Crop residues shredded and left on the surface as a mulch help to increase infiltration and to maintain tilth. Crops respond well to fertilizer and lime. The excessive surface water can be removed from these soils by graded rows and surface field drains. Diversions are needed in some areas to control water from adjacent hills.

CAPABILITY UNIT IIw-4

In this capability unit are nearly level and gently sloping, somewhat poorly drained Calloway soils that have a fragipan at a depth of about 16 inches. These soils have a brownish, friable silt loam surface layer and a yellowish silt loam or silty clay loam subsoil. They are strongly acid, are medium or low in natural fertility, and have a medium or low available water capacity. The fragipan retards the movement of water and restricts the growth of roots. Consequently, the subsoil is waterlogged during wet periods, particularly in winter and spring. In summer, however, these soils are slightly droughty because the soil above the fragipan is thin.

These soils are easily worked and generally produce fairly favorable yields of the commonly grown crops. Suited crops are cotton, soybeans (fig. 4), grain sorghum, small grain, grasses, and legumes. One of the many suitable cropping systems is 2 years of row crops and 2 years of grasses and legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer. The excessive surface water can be removed by graded rows and surface field drains.

Figure 4.—Combining soybeans on Calloway silt loam.

CAPABILITY UNIT IIw-5

Dubbs silty clay loam is the only soil in this unit. This nearly level, well-drained soil is on natural levees of the Mississippi River Delta. It has a brownish, friable silty clay loam surface layer and a brownish, firm heavy silty clay loam subsoil. Acidity is strong, and natural fertility and available water capacity are high. This soil is likely to be flooded about once a year. The floods last from 1 to 3 days and moderately damage crops.

This soil is fairly difficult to work. It is sticky when wet, and preparing the seedbed and planting are often delayed in spring. Yields of the commonly grown crops are generally favorable. Suitable crops are cotton, corn, soybeans, grain sorghum, grasses, and legumes. Many cropping systems are suitable. A row crop can be cultivated every year or can be rotated with grasses and legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer and lime. The excessive surface water can be removed from this soil by graded rows and surface field ditches.

CAPABILITY UNIT IIIe-1

This capabilty unit consists of gently sloping and moderately sloping, well-drained Loring and Memphis soils that are moderately eroded or severely eroded. These soils have a brownish, friable surface layer and a brownish silty clay loam subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. The Loring soils have a weak fragipan at a depth of about 2½ feet, but at that depth the fragipan restricts the growth of roots very little.

The soils in this unit are easily worked and normally produce favorable yields of cotton, corn, soybeans, small grain, grasses, and legumes. Suitable cropping systems are few. Because the hazard of erosion is severe, row crops should not be grown every year. An example of a suitable cropping system is 4 years of grasses and legumes and 2 years of row crops. Crop residues shredded and left on the surface help to maintain tilth and to increase infiltration. Crops respond well to fertilizer and lime.

CAPABILITY UNIT IIIe-2

Only Grenada silt loam, 2 to 5 percent slopes, severely eroded, is in this capability unit. This moderately well drained soil has a fragipan at a depth of about 18 inches. It has a brownish, friable surface layer and a brownish, friable heavy silt loam subsoil. It is strongly acid, is medium or low in natural fertility, and has medium available water capacity. In this soil the fragipan slows the movement of water and restricts the growth of roots. The subsoil is waterlogged during rainy periods, especially in winter and spring. During dry periods in summer, however, this soil is droughty because it is thin above the fragipan.

This soil is easily worked and produces fairly favorable yields of the commonly grown crops. Suitable crops

are cotton, corn, soybeans, small grain, grasses, and legumes. Because the hazard of erosion is severe, the choice of suitable cropping systems is somewhat limited and row crops should not be grown every year. To reduce erosion, a cover of close-growing crops is needed for as much of the time as practical. A suitable cropping system is 4 years of grass and legumes and 2 years of row crops. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer and lime.

CAPABILITY UNIT IIIe-3

In this capability unit are sloping, moderately well drained or well drained Dulac, Grenada, and Providence soils that are moderately eroded. These soils have a brownish, friable silt loam surface layer and a brownish, friable heavy silt loam or silty clay loam subsoil. They are strongly acid, are medium or low in natural fertility, and have medium available water capacity. At a depth of about 2 feet, these soils have a fragipan that restricts the growth of roots and slows the movement of water. Consequently, the subsoil is waterlogged during rainy periods, especially in winter and early in spring. During dry periods in summer, however, these soils are slightly droughty because they are thin above the fragipan.

The soils in this unit are easily worked and generally produce fairly favorable yields of the commonly grown crops. Suitable crops are cotton, corn, soybeans, small grain, grasses, and legumes. Because the hazard of erosion is severe, the choice of suitable cropping systems is somewhat limited and row crops should not be grown every year. A suitable cropping system is 4 years of grasses and legumes and 2 years of row crops. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer and lime.

CAPABILITY UNIT IIIw-1

Henry silt loam—the only soil in this capability unit—is nearly level, is poorly drained, and has a fragipan at a depth of 1 foot. The surface layer of this soil is brownish, friable silt loam, and the subsoil is grayish silt loam or silty clay loam. Acidity is strong, and natural fertility and available water capacity are low. The fragipan slows the movement of water and restricts the growth of roots, and the subsoil is waterlogged during rainy periods. During dry periods in summer, however, this soil is slightly droughty because it is thin above the fragipan.

This soil is poorly suited to most of the commonly grown row crops and generally produces low yields. It is suited to most of the commonly grown grasses and legumes and produces fairly favorable yields. The choice of suitable cropping systems is somewhat limited; an example of one is 6 years of grasses and legumes and 3 years of row crops. Crop residues shredded and left on the surface as a mulch help to increase infiltration and to maintain tilth. Crops respond moderately well to fertilizer and lime. Surface water can be removed by graded rows and surface field drains. Diversions may be needed in some areas where runoff from higher areas collects.

CAPABILITY UNIT IIIw-2

Waverly silt loam is the only soil in this capability unit. This soil occurs on bottom lands and is nearly level and poorly drained. It has a brownish, friable silt loam surface layer and a gray silt loam subsoil. This soil is strongly acid and has medium or low natural fertility and available water capacity. The bottom lands on which this soil occurs are protected by diversions and major structures for flood control, but flooding is likely about once every year. The floods last for only a short time and damage crops only slightly or moderately.

Although this soil is easy to work, preparing the seedbed and planting are often delayed because the soil is wet early in spring. The choice of suitable cropping systems is somewhat limited. This soil is poorly suited to most of the commonly grown row crops and generally produces low yields. Suitable crops are Coastal bermudagrass, common bermudagrass, fescue, bahiagrass, white clover, and annual lespedeza. Surface field drains and a system of main and lateral ditches can be used for removing excessive surface water.

CAPABILITY UNIT IIIw-3

In this capability unit are nearly level, poorly drained Alligator and Forestdale soils on bottom lands and natural levees. These soils have a dark grayish-colored, friable silty clay loam surface layer and a grayish-colored plastic clay or silty clay subsoil. They are strongly acid, are medium or high in natural fertility, and have medium or high available water capacity. These soils are likely to be flooded about once each year, normally from 1 to 3 days. The damage to crops is no more than moderate.

The soils in this unit are sticky when wet and are difficult to cultivate. Preparing the seedbed and planting are often delayed because these soils are wet early in spring. Suitable crops are soybeans, grain sorghum, small grain, grasses, and legumes. Yields are fairly favorable. Many cropping systems are suitable. The soils can be cultivated every year, or row crops can be rotated with grasses and legumes. Crop residues shredded and left on the surface help to maintain tilth and to increase infiltration. Crops respond moderately well to fertilizer and lime. The excessive surface water can be removed by surface field drains and a system of main and lateral ditches.

CAPABILITY UNIT IIIw-4

Only nearly level Alligator clay is in this capability unit. This poorly drained soil has a dark grayish-colored, firm clay surface layer and a grayish, plastic clay subsoil. It is strongly acid and high in natural fertility and available water capacity. This soil is on bottom lands and is likely to be flooded for 1 to 3 days about once each year. The damage to crops is no more than moderate.

This soil is sticky when wet and is difficult to cultivate. It generally produces fairly favorable yields of some of the commonly grown crops. Suitable crops are rice, soybeans, grain sorghum, small grain, grasses, and legumes. Many cropping systems are suited. A cultivated crop can be grown every year, or a row crop can be rotated with grasses and legumes. Crop residues

shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond moderately well to fertilizer and lime. Excessive surface water can be removed by surface field drains and a system of main and lateral ditches.

CAPABILITY UNIT IIIw-5

Only Mixed alluvial land is in this capability unit. This land type consists of recent, thinly stratified alluvium that ranges from silt loam to sandy loam or loamy sand. The soil material is strongly acid and varies in natural fertility and available water capacity. Flooding is likely about 1 year in 4 years, and it moderately damages crops.

This land type is easily worked, but it is slightly droughty during dry periods in summer. It produces fairly favorable yields of most of the commonly grown crops. Suitable crops are cotton, corn, grasses, and legumes. Many cropping systems are suited. A cultivated crop can be grown every year, or a row crop can be rotated with grasses and legumes. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. Crops respond well to fertilizer. The excessive surface water can be removed by graded rows and by lateral ditches and surface field drains.

CAPABILITY UNIT IVe-1

This capability unit consists of strongly sloping, well-drained Loring and Memphis soils that are moderately to severely eroded. These soils have a brownish, friable silt loam surface layer and a brownish silty clay loam subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. The Loring soils have a weak fragipan at a depth of about 2½ feet. At this depth the fragipan restricts the growth of roots only slightly, if at all.

The soils in this unit are easily worked and generally produce favorable yields of the commonly grown crops. These soils are suited to cotton, corn, soybeans, small grain, grasses, and legumes. Suitable cropping systems are not numerous, because the hazard of erosion is very severe. Growing a row crop or another cultivated crop every year is not a good practice. For as much of the time as is practical, a cover of close-growing crops is needed. An example of a suitable cropping system is 6 years of grasses and legumes and 2 years of row crops. Crop residues shredded and left on the surface as a mulch help to increase infiltration and to maintain tilth. Crops respond well to fertilizer and lime. Contour farming, terraces, and grassed waterways are effective in controlling runoff and retarding erosion. Field roads should be on the dividing ridges or parallel to terraces.

CAPABILITY UNIT IVe-2

In this capability unit are sloping, moderately well drained and well drained Dulac, Grenada, and Providence soils that are severely eroded. These soils have a brownish, friable silt loam surface layer and a brownish heavy silt loam or silty clay loam subsoil. They are strongly acid, are medium or low in natural fertility, and have medium available water capacity. At a depth of about 18 inches, these soils have a fragipan that slows the movement of water and restricts the growth of roots. As a result, the subsoil is waterlogged during rainy seasons, especially in winter and early in spring. In summer during dry periods, the soils are droughty because they are thin above the fragipan.

The soils in this unit are easily worked and generally produce fairly favorable yields of the commonly grown crops. Suitable crops are cotton, corn, soybeans, small grain, grasses, and legumes. The choice of suitable cropping systems is limited because the hazard of erosion is very severe. It is not a good practice to grow a row crop or another cultivated crop every year. A cover of close-growing crops is needed for as much of the time as is practical. A suitable cropping system is 6 years of grasses and legumes and 2 years of row crops. Crop residues shredded and left on the surface as a mulch help to increase infiltration and to maintain tilth. On these soils crops respond well to fertilizer and lime. Terraces, contour farming, and grassed waterways are effective in controlling runoff and retarding erosion.

CAPABILITY UNIT IVe-3

Only Providence-Loring complex, 8 to 12 percent slopes, eroded, is in this capability unit. The soils in this complex are moderately well drained and well drained. They have a brownish, friable silt loam surface layer and a brownish, silty clay loam subsoil. These soils are strongly acid, are medium or low in natural fertility, and have high or medium available water capacity. At a depth of 2 to 2½ feet, a fragipan retards the movement of water. Because the soil above the fragipan is only moderately thick, these soils are slightly droughty in summer.

The soils in this unit are fairly easy to work and generally produce fairly favorable yields of the commonly grown crops. Suitable crops are cotton, corn, soybeans, grain sorghum, grasses, and legumes. Suitable cropping systems are few. Because the hazard of erosion is very severe, these soils should not be cultivated every year. A suitable cropping system is 6 years of grasses and legumes and 2 years of row crops. Crop residues shredded and left on the surface as a mulch help to maintain tilth and to increase infiltration. On these soils crops respond well to fertilizer and lime. Terraces, contour farming, and grassed waterways are effective in controlling runoff. Field roads should be on the dividing ridges or parallel to terraces.

CAPABILITY UNIT IVw-1

Alligator clay, depressional, is the only soil in this capability unit. This nearly level, poorly drained soil is in depressions and drainageways. It has a dark grayish, firm clay surface layer and a grayish, plastic clay subsoil. It is strongly acid, is high in natural fertility, and has high available water capacity. This soil receives runoff from higher areas and is likely to be flooded frequently. Water is ponded for fairly long periods and damages crops severely.

The soil in this unit is very sticky when wet and is difficult to cultivate. It is suited to rice, soybeans, grasses, and legumes. The hazard of flooding limits suitable cropping systems mainly to grasses and legumes for hay and pasture. Fertilizer is needed for favorable yields of pasture and hay. Surface field drains and a system of main and lateral ditches are needed to remove surface water.

CAPABILITY UNIT IVw-2

The Falaya-Collins association makes up this capability unit. The soils in this association are nearly level and somewhat poorly drained or moderately well drained. These soils have a brownish, friable silt loam surface layer and a brownish or mottled brown and gray subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. These soils are mainly on forested bottom lands where drainage systems have not been constructed. They are subject to flooding about 3 years out of 5. The lower areas are waterlogged for long periods.

Because flooding is likely, these soils are probably better suited to pasture and hardwoods than to cultivated crops. Row crops can be planted, however, if an adequate drainage system is installed that provides surface field drains and a system of main and lateral ditches. In drained areas the cropping systems given for capability units IIw–2 and IIw–3 are suitable for the soils in this unit.

CAPABILITY UNIT IVw 3

In this capability unit are nearly level, poorly drained and somewhat poorly drained Waverly and Falaya soils that are mapped as an association on bottom lands. These soils have a brownish, friable silt loam surface layer and a grayish or mottled gray and brown silt loam subsoil. They are strongly acid, are medium to low in natural fertility, and have high to low available water capacity. The soils in this unit are subject to flooding 3 years out of every 4 or 5 and are waterlogged in the depressional areas for long periods.

These soils are mainly on wooded bottom lands where drainage systems have not been installed. Because the hazard of flooding is severe, pasture and hardwoods are better suited than cultivated crops. Cultivated crops can be grown, however, if an adequate drainage system is installed that provides surface field drains and a system of main and lateral ditches. In drained areas the cropping systems given for the soils in capability unit IIIw–2 are suitable for the Waverly soils of this unit, and those given for the soils in capability unit IIw–3 are suitable for the Falaya soils.

CAPABILITY UNIT Vw-1

In this unit are nearly level, poorly drained soils of the Alligator association. These soils have a dark grayish-colored silty clay loam or clay surface layer and a grayish, plastic clay subsoil. They are strongly acid, are high in natural fertility, and have medium or high available water capacity. These soils are mainly on forested bottom lands where drainage systems have not been constructed. They are subject to flooding in about 3 years out of 4 or 5, and floodwaters pond the depressions for long periods.

Because the hazard of flooding is severe, these soils are better suited to pasture and hardwoods than to cultivated crops. They can be cleared and cultivated, however, if an adequate drainage system is installed that includes surface field drains and a system of main and lateral ditches. In drained areas the cropping systems given for the soils in capability units IIIw–3 and IIIw–4 are suitable for the soils of this unit.

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CAPABILITY UNIT Vw-2

Only Sandy alluvial land is in this capability unit. This land type consists of sandy material that was recently deposited by streams on bottom lands. It is excessively drained. Its texture is sand and loamy sand throughout. Acidity is very strong, and natural fertility and available water capacity are low.

Most of the commonly grown crops are poorly suited to this droughty land. Bermudagrass is fairly well suited, but large amounts of fertilizer are required if yields are to be even fairly favorable. This land is better suited to cottonwood and willow trees than to grasses.

CAPABILITY UNIT VIe-1

In this capability unit are moderately steep and steep, well-drained Memphis soils that are slightly eroded or moderately eroded. These soils have a brownish, friable silt loam surface layer and a brownish silty clay loam subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity.

On these soils the hazard of erosion is very severe. Because slopes are steep, row crops are not suited. Good pasture can be established. Suitable pasture plants are Coastal bermudagrass, common bermudagrass, bahiagrass, and legumes. For slowing runoff and controlling erosion, a cover of perennial grasses or of grasses and legumes is needed at all times. Grasses and legumes respond well to fertilizer and lime.

CAPABILITY UNIT VIe-2

This capability unit consists of moderately steep, moderately well drained and well drained Providence and Loring soils that are slightly eroded or moderately eroded. These soils occur in a fairly uniform pattern and are mapped in complexes. They have a brownish, friable silt loam surface layer and a brownish silty clay loam subsoil. They are strongly acid, are medium or low in natural fertility, and have high or medium available water capacity. At a depth of 2 to 2½ feet, a fragipan occurs that retards the movement of water. Because the soil above the fragipan is thin, these soils are slightly droughty in summer.

Because the soils are moderately steep, the hazard of erosion is very severe. These soils are not suited to row crops but produce fairly good pasture. Suitable pasture plants are Coastal bermudagrass, common bermudagrass, bahiagrass, and legumes. If these soils are used for pasture, a cover of perennial grasses or of grasses and legumes is needed at all times so that runoff is slowed and erosion is controlled. Grasses and legumes respond well to fertilizer and lime.

CAPABILITY UNIT VIe-3

In this capability unit are complexes of moderately well drained and well drained Ruston and Providence soils that occur in a fairly uniform pattern on moderately steep uplands. These soils are slightly eroded or moderately eroded. They are strongly acid or very strongly acid, are medium or low in natural fertility, and have medium available water capacity. The Ruston soils are on the middle and lower slopes. They have a brownish, friable fine sandy loam surface layer and a reddish sandy clay loam subsoil. The Providence soils are on

the ridgetops and upper slopes. They have a brownish, friable silt loam surface layer and brownish silty clay loam subsoil.

Erosion is a very severe hazard. Because these soils are steep, they are not suitable for cultivation. They produce moderate yields of pasture. Suitable pasture plants are bermudagrass, bahiagrass, and annual and sericea lespedezas. If these soils are used for pasture, a cover of perennial grasses or of grasses and legumes is needed at all times for controlling erosion. Grasses and legumes respond favorably to fertilizer.

CAPABILITY UNIT VIe-4

In this capability unit are complexes of strongly sloping, moderately well drained Tippah and Boswell soils that occur in a uniform pattern. These soils are slightly eroded or moderately eroded. They are strongly acid or very strongly acid, are medium or low in natural fertility, and have medium available water capacity. The Tippah soils are on the ridgetops and upper slopes. They have a brownish, friable silt loam surface layer and a brownish, friable silty clay loam subsoil. The Boswell soils are on the middle and lower slopes. They have a brownish, friable fine sandy loam surface layer and a reddish, plastic clay subsoil.

Erosion is a very severe hazard. Because the slopes are strong, these soils are not suited to cultivated crops. They produce fairly good pasture of bermudagrass, bahiagrass, and annual and sericea lespedezas. If these soils are used for pasture, a cover of perennial grasses is needed most of the time for controlling erosion. Grasses and legumes respond favorably to fertilizer and lime.

CAPABILITY UNIT VIIe-1

Memphis silt loam, 17 to 50 percent slopes, severely eroded, is the only soil in this capability unit. This well-drained soil is on uplands and has a brownish, friable heavy silt loam surface layer and a brownish silty clay loam subsoil. It is strongly acid, is medium in natural fertility, and has high available water capacity.

The hazard of erosion is severe. Because the slopes are steep and severely eroded, this soil is not suitable for cultivation. It produces fairly good pasture of bermudagrass, bahiagrass, and annual and sericea lespedezas. A cover of perennial grasses and legumes is needed at all times for slowing runoff and controlling erosion. Grasses and legumes respond well to fertilizer and lime.

CAPABILITY UNIT VIIe-2

In this capability unit are land types of gullied land in which the soil material is clayey, silty, or sandy. The pattern of gullies is intricate, and the soil profiles have been largely destroyed except in small areas between the gullies. The soil material of these land types is strongly acid or very strongly acid. It varies in natural fertility and available water capacity.

This land is not suited to cultivated crops or pasture. Generally, it is expensive and uneconomical to smooth and reclaim this land so that it can be used for pasture. Pine trees are suited.

CAPABILITY UNIT VIIe-3

In this capability unit are slightly eroded, moderately well drained or well drained Providence, Loring, and Ruston soils on hilly uplands. These soils are strongly acid or very strongly acid, are medium or low in natural fertility, and have high or medium available water capacity. They are mapped as associations and occur in a fairly uniform pattern. The Providence and Loring soils are mainly on the ridgetops and upper slopes, and the Ruston soils are on the lower slopes. Providence and Loring soils have a brownish, friable silt loam surface layer and a brownish silty clay loam subsoil. Ruston soils have a brownish, friable fine sandy loam surface layer and a reddish sandy clay loam subsoil.

Erosion is a very severe hazard. Because these soils are hilly, they are not suited to cultivated crops or pasture. They are suited to trees.

CAPABILITY UNIT VIIe-4

This capability unit consists of complexes and associations of moderately well drained or well drained Cuthbert and Ruston soils in a fairly uniform pattern on steep and hilly uplands. These soils are slightly eroded or moderately eroded. They are very strongly acid, are low in natural fertility, and have medium or low available water capacity. The Ruston soils are on the very steep middle and upper slopes and on some of the ridgetops. They have a brownish, friable fine sandy loam surface layer and a reddish sandy clay loam subsoil. The Cuthbert soils are on the middle and lower slopes. They have a brownish, friable fine sandy loam surface layer and a thin, reddish clay loam or clay subsoil.

Erosion is a very severe hazard. Because these soils are hilly, they are not suited to cultivated crops or pasture. They are suited to trees.

CAPABILITY UNIT VIIe-5

In this capability unit are complexes of moderately well drained, slightly eroded or moderately eroded Tippah and Boswell soils that are in a fairly uniform pattern on steep uplands. These soils are strongly acid or very strongly acid, are medium or low in natural fertility, and have medium available water capacity. The Tippah soils are on the ridgetops and upper slopes. They have a brownish, friable silt loam surface layer and a brownish silty clay loam subsoil. The Boswell soils are on the middle and lower slopes. They have a brownish, friable sandy loam surface layer and a reddish, plastic clay subsoil.

Erosion is a very severe hazard. Because slopes are steep, these soils are not suited to cultivated crops or pasture. They are suited to trees.

CAPABILITY UNIT VIIe-6

The soils of the Memphis-Guin complex, 17 to 50 percent slopes, make up this capability unit. These soils are on very steep uplands and are slightly eroded and well drained or excessively drained. They occur in a uniform pattern. The Memphis soils are on the ridgetops and upper slopes and have a brownish, friable silt loam surface layer and a brownish silty clay loam subsoil. They are strongly acid, are medium in natural fertility, and have high available water capacity. The Guin soils are on the middle and lower slopes and have a gravelly sandy loam surface layer and a gravelly

sand subsoil. They are very strongly acid, are low in natural fertility, and have low available water capacity.

Erosion is a very severe hazard. Because slopes are steep, these soils are not suited to cultivated crops or pasture. They are suited to trees.

Estimated Yields

Yields of the principal crops grown in this county under two levels of management are estimated in table 2. The yields in columns A are those obtained under the ordinary management practiced in the county. Those in columns B are obtained under a high level of management, which is defined in this subsection.

The estimates are based on yields obtained in long-term experiments; yields harvested on farms that cooperated in soil management studies; predicted yields provided by agronomists who have had much experience with the soils and crops of Grenada County; and information in the Mississippi Technical Guide for Agronomy of the Soil Conservation Service.

Data on yields obtained from experiments were adjusted to reflect the combined effect of slope, weather, and levels of management. If data from experiments were not available, estimates were made by using available data for similar soils. The estimates are for nonirrigated areas that have average rainfall through a long period. The hazard of flooding on alluvial soils was not considered, because previous and existing conditions indicate the effects of flooding must be considered locally.

TABLE 2.—*Estimated average yields per acre of the principal crops under two levels of management on the soils suitable for cultivation*

[Yields in columns A are those obtained under the common management; yields in columns B are those to be expected under the highest management feasible. Absence of a yield figure indicates the crop is not commonly grown on the particular soil or that yield data are not available]

Soil	Cotton		Corn		Soybeans		Oats		Hay		Pasture		
									Bermudagrass and legumes		Bermudagrass and legumes		Coastal bermudagrass
	A	B	A	B	A	B	A	B	A	B	A	B	B
	Lbs.	*Lbs.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Animal-unit-month* [1]	*Animal-unit-month* [1]	*Animal-unit-month* [1]
Alligator clay	300	500	20	50	15	35	30	50	1.5	3.5	3.5	7.0	9.0
Alligator clay, depressional					15	30	30	50	2.0	5.0	3.5	7.0	9.0
Alligator silty clay loam	350	550	25	60	20	40	35	50	1.5	3.5	3.5	7.0	9.0
Calloway silt loam, 0 to 2 percent slopes	450	600	40	65	18	30	40	65	1.3	3.0	3.0	6.5	9.5
Calloway silt loam, 2 to 5 percent slopes	400	550	40	60	18	25	40	60	1.3	3.0	3.0	6.5	9.5
Cascilla silt loam	700	850	60	95	30	40	50	80	1.2	5.0	4.0	9.0	12.1
Collins silt loam	700	800	60	95	25	35	50	80	1.2	5.0	4.0	9.0	12.1
Collins silt loam, local alluvium	700	800	60	95	25	35	50	80	1.2	5.0	4.0	9.0	12.1
Dubbs silty clay loam	400	700	30	65	15	35	35	60	2.0	4.0	4.5	8.5	10.0
Dulac silt loam, 2 to 5 percent slopes, eroded	450	625	45	75	18	30	50	65	1.6	3.0	3.0	6.0	9.0
Dulac silt loam, 5 to 8 percent slopes, eroded	400	575	30	65	15	25	50	60	1.6	3.0	2.5	5.5	8.0
Dulac silt loam, 5 to 8 percent slopes, severely eroded	300	450	25	45	15	20	40	50	1.4	2.0	2.0	5.0	6.5
Falaya silt loam	600	700	55	85	20	35	45	65	2.1	4.5	4.0	8.0	10.5
Falaya silt loam, local alluvium	600	700	55	85	20	35	45	65	2.1	4.5	4.0	8.0	10.5
Forestdale silty clay loam	400	575	30	55	15	35	35	55	2.0	4.0	3.5	7.5	8.0
Grenada silt loam, 0 to 2 percent slopes	550	700	55	75	20	35	45	65	1.8	3.0	3.5	6.5	9.5
Grenada silt loam, 2 to 5 percent slopes, eroded	450	625	45	75	18	30	40	60	1.6	3.0	3.0	6.0	9.5
Grenada silt loam, 2 to 5 percent slopes, severely eroded	350	500	35	50	15	20	35	50	1.4	2.5	2.5	5.0	7.0
Grenada silt loam, 5 to 8 percent slopes, eroded	400	575	30	65	15	25	50	60	1.6	2.9	2.5	5.5	8.0
Grenada silt loam, 5 to 8 percent slopes, severely eroded	325	450	20	45	15	20	40	50	1.4	2.0	2.0	5.0	6.5
Henry silt loam	300	425	25	40	15	20	35	50	1.3	2.7	3.0	6.0	
Loring silt loam, 0 to 2 percent slopes	650	800	67	85	20	35	50	70	2.0	4.0	3.5	6.5	10.0
Loring silt loam, 2 to 5 percent slopes, eroded	600	750	67	85	20	35	45	70	2.0	4.0	3.5	6.5	10.0
Loring silt loam, 2 to 5 percent slopes, severely eroded	500	650	50	65	18	30	40	65	1.5	3.5	2.5	5.5	8.5
Loring silt loam, 5 to 8 percent slopes, eroded	500	650	55	70	20	32	42	67	2.0	4.0	3.0	6.5	10.0
Loring silt loam, 5 to 8 percent slopes, severely eroded	400	600	40	60	15	25	38	60	1.5	3.5	3.0	5.5	8.0

See footnote at end of table.

TABLE 2.—*Estimated average yields per acre of the principal crops under two levels of management on the soils suitable for cultivation*—Continued

Soil	Cotton		Corn		Soybeans		Oats		Hay		Pasture		
									Bermudagrass and legumes		Bermudagrass and legumes		Coastal bermudagrass
	A	B	A	B	A	B	A	B	A	B	A	B	B
	Lbs.	*Lbs.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Animal-unit-month* [1]	*Animal-unit-month* [1]	*Animal-unit-month* [1]
Loring silt loam, 8 to 12 percent slopes, eroded	325	500	40	60	16	26	40	65	1.5	3.5	3.0	6.0	8.5
Loring silt loam, 8 to 12 percent percent slopes, severely eroded	300	450	25	50	10	20	30	55	2.0	3.0	2.5	5.5	7.5
Memphis silt loam, 0 to 2 percent slopes	685	825	67	85	25	36	50	80	2.0	4.0	3.5	6.5	10.0
Memphis silt loam, 2 to 5 percent slopes, eroded	600	750	67	85	22	35	60	75	2.0	4.0	3.5	6.5	10.0
Memphis silt loam, 5 to 8 percent slopes, severely eroded	500	600	50	65	25	32	50	65	1.6	3.5	3.0	5.5	8.0
Memphis silt loam, 8 to 12 percent slopes, severely croded	375	500	30	55	15	25	35	55	1.5	2.5	2.5	5.5	7.5
Memphis silt loam, 12 to 17 percent slopes											3.0	6.0	8.0
Memphis silt loam, 12 to 17 percent slopes, eroded											2.5	5.0	8.0
Memphis silt loam, 17 to 40 percent slopes											2.5	5.0	7.0
Memphis silt loam, 17 to 50 percent slopes, severely eroded											2.0	5.0	
Mixed alluvial land	300	400	25	50	15	25	30	50	1.5	3.0	3.0	5.5	8.5
Providence-Loring complex, 8 to 12 percent slopes, eroded									1.4	2.4	2.5	5.5	8.0
Providence-Loring complex, 12 to 17 percent slopes											2.0	5.0	7.0
Providence-Loring complex, 12 to 17 percent slopes, eroded											2.0	5.0	7.0
Providence silt loam, 5 to 8 percent slopes, eroded	400	550	40	65	15	28	45	60	1.6	3.0	3.0	5.5	8.0
Providence silt loam, 5 to 8 percent slopes, severely eroded	325	450	20	45	12	20	40	50	1.0	2.0	2.5	5.0	6.5
Tippah-Boswell complex, 8 to 12 percent slopes									1.1	2.5		5.0	7.0
Tippah-Boswell complex, 8 to 12 percent slopes, eroded									1.1	2.0		5.0	7.0
Vicksburg silt loam	700	850	60	95	30	40	50	80	2.0	5.0	4.5	9.0	12.0
Vicksburg silt loam, local alluvium	700	850	60	95	30	40	50	80	2.0	5.0	4.5	9.0	12.0
Waverly-Falaya association													
Waverly silt loam	300	550	25	65	20	30	45	60	1.5	3.0	3.0	7.0	

[1] An animal-unit-month is the number of months that 1 acre will provide grazing for 1 animal, or 1,000 pounds of live weight; or it is the number of months times the number of animal units. For example, Vicksburg silt loam in a pasture of Coastal bermudagrass will graze 6 animals for 2 months and is rated 12 animal-unit-months.

The improved management used to obtain the yields in columns B of table 2 is based on research findings for all crops and includes the following practices—

1. Fertilizing at planting, in accordance with the needs indicated by soil tests, by past cropping and fertilizing practices, and by recommendations of the Mississippi Agricultural Experiment Station.
2. Use of crop varieties and hybrids that are high yielding and suited to the area.
3. Adequate preparation of the seedbed.
4. Planting or seeding by suitable methods at recommended seeding rates and planting dates.
5. Inoculation of legumes.
6. Shallow cultivation of row crops.
7. Control of weeds, insects, and diseases.
8. Use of soil-conserving cropping systems similar to those discussed in the capability units.
9. Control of water, where needed, by sodding waterways, cultivating on the contour, terracing, contour stripcropping, and using diversion terraces.
10. Protecting pasture from overgrazing.

Use of Soils as Woodland [1]

About 165,800 acres, or 60 percent of the county, is commercial forest (*10*).[2] These forests furnish raw material for local industries, provide jobs for local residents, and contribute to the economy of the county. Moreover, the woodland offers sport and outdoor recreation for hundreds of people in the county.

Table 3 lists, in cords per acre, the average yearly growth of some important wood crops in Grenada County.

Most of the timber in the county comes from hardwoods. Sweetgum is the most widely distributed and most important hardwood. Species of red oak rank next in importance and are closely followed by white oak, water tupelo, and black tupelo. Ash and elm are of minor importance. Loblolly and shortleaf pine are the principal softwoods.

On the following pages, the principal kinds of forest types in the county are discussed, and the soils are grouped according to their suitability for trees. Some of the factors that affect management are also discussed.

TABLE 3.—*Average yearly growth per acre of some important wood crops in Grenada County* [1]

Site index	Loblolly pine [2]	Shortleaf pine [3]	Yellow-poplar [3]	Upland oaks [4]
	Cords	*Cords*	*Cords*	*Cords*
60		1. 07		0. 46
70	1. 03	1. 37		. 50
80	1. 27	1. 60	0. 90	. 66
90	1. 53	1. 80	1. 15	. 85
100	1. 77		1. 40	
110	2. 07		1. 66	
120			1. 89	

[1] Fully-stocked natural stands, to age 30, without intermediate cuttings.
[2] Adapted from USDA, Miscellaneous Publication 50 (*9*).
[3] Adapted from USDA, Technical Bulletin 356 (*4*).
[4] Adapted from USDA, Technical Bulletin 560 (*6*).

Forest types

Stands of trees that cover a considerable part of the county may be classed as a forest type according to the kinds and proportion of trees in the stand. A forest type generally is given the name of the tree or trees that are dominant in the stand.

The following lists the forest types on woodland in the county and the number of acres occupied by each.

Forest type:	*Acres*
Oak-hickory	54, 900
Oak-gum-cypress and elm-ash-cottonwood	53, 600
Loblolly-shortleaf pine	43, 000
Oak-pine	14, 300
Total	165, 800

In the oak-hickory forest type, 50 percent or more of the stand is upland oaks and hickory, alone or mixed. Other trees commonly present are yellow-poplar, elm, maple, and black walnut. The oak-hickory forest type occurs mainly on the Memphis-Loring association, particularly in the part of the association in the southern and south-central parts of the county. This association consists of soils of the uplands that formed in loess. This type also occurs with the oak-pine forest type in other parts of the county.

The oak-gum-cypress forest type is on bottom lands. At least 50 percent of the stand is tupelo, black tupelo, sweetgum, oaks, or southern cypress, alone or mixed. Common associates in the stand are cottonwood, willow, ash, elm, hackberry, and maple. The oak-gum-cypress forest type occurs mainly on the Alligator-Forestdale and Waverly-Falaya-Collins associations. It occurs in the extreme western part of the county on bottom lands of the Yalobusha River and its tributaries.

The elm-ash-cottonwood forest type is also on bottom lands. It has 50 percent or more of its stand in elm, ash, or cottonwood, alone or mixed. Also common in the stand are willow, sycamore, beech, and maple (*10*). This forest type occurs on the Collins, Falaya, Vicksburg, and Cascilla soils on the alluvial plain of the Yalobusha River in the extreme western part of the county.

In the loblolly-shortleaf pine type, 50 percent or more of the stand is loblolly pine, shortleaf pine, or other southern yellow pines except longleaf and slash pine. The stand may be pure or mixed and may include oak, hickory, and gum (*10*). This forest type occurs mainly on the Ruston-Cuthbert-Providence association, but it also occurs in some areas on the Tippah-Boswell-Dulac association. It is mainly in the east-central part of the county but also occurs with the oak-pine type in other parts of the county.

In the oak-pine forest type, 50 percent of the stand or more is hardwoods, generally upland oaks, and 25 to 49 percent is southern pines. The stand may be pure or mixed and may include gum, hickory, and yellow-poplar (*10*). This forest type occurs mainly on the Providence-Loring-Ruston association and in some areas on the Tippah-Boswell-Dulac association. It is widely distributed throughout the central, northeastern, and southern parts of the county. In some areas, the oak-pine forest type is mixed with the loblolly-shortleaf pine forest type and the oak-hickory forest type.

Woodland suitability groups of soils

Management of woodland can be planned more effectively if soils are grouped according to those characteristics that affect the growth of trees and management of the stand. For this reason, the soils of Grenada County have been placed in woodland suitability groups. The soils in each group are suited to about the same kind of trees, require about the same kind of management, respond to similar management in about the same way, and have about the same potential productivity.

The land types Borrow area, Gravel pits, and Sand pits have such variable characteristics that they have not been placed in woodland suitability groups. In each group the trees preferred for planting and in existing stands, as well as the site index for the trees, are given.

[1] JOE V. ZARY, woodland conservationist, and RICHARD COVELL, State soil scientist, Soil Conservation Service, assisted in the preparation of this section. The data on hardwoods were compiled by W. M. BROADFOOT, soil scientist, Forest Service, Southern Forest Experiment Station.
[2] Italic numbers in parentheses refer to Literature Cited, p. 68.

Also mentioned are some of the limitations that affect management. The terms used in these groups require explanation.

The potential productivity of a soil for a kind of tree is expressed as the *site index*. For each woodland suitability group, the site index that is given for all trees except cottonwoods is the average height, in feet, of the dominant and codominant trees at 50 years of age. For cottonwoods, the site index is the average height at 30 years.

The site index was estimated after studying the growth of trees on woodland in this county and in other counties where the soils are similar. The growth of special kinds of trees was observed on a specified kind of soil. As nearly as possible, the studies were confined to well-stocked, naturally occurring, even-aged, unmanaged stands that have not been damaged by fire, insects, disease, or grazing livestock. For some species of trees, sites suitable for measurement were not available on all kinds of soils in the county. The site indexes were estimated for those trees by using data on the site index for similar soils.

Hazards and limitations to tree production that are significant to management are rated slight, moderate, and severe, as explained in the following paragraphs. The ratings are for woodland on which normal management and harvesting are practiced.

Seedling Mortality: This term refers to the loss of naturally occurring or planted seedlings as influenced by kinds of soil or topographic conditions when plant competition is assumed not to be a limiting factor. Seedling mortality is *slight* if 0 to 25 percent of the seedlings are expected to die and is *moderate* if this percentage is between 25 and 50. If more than 50 percent of the seedlings are expected to die, seedling mortality is *severe*.

Plant Competition: This term refers to the degree that brush, grass, and undesirable trees are likely to invade. Plant competition is slight if unwanted plants do not prevent adequate natural regeneration and early growth or do not interfere with the growth of planted seedlings. It is *moderate* if competing plants delay but do not prevent establishment of a normal fully stocked stand by natural regeneration or from planted seedlings. Competition is *severe* where natural or artificial regeneration is not adequate unless there is intensive site preparation and maintenance, including weeding.

Equipment Limitations: Steep slopes, stones, and excess water limit the use of ordinary equipment in pruning, thinning, harvesting, and other woodland management. The rating is *slight* if there are very few limitations on the type of equipment or the time of year that the equipment can be used. It is *moderate* if slopes are moderately steep, if heavy equipment is restricted by wetness during the wettest periods, or if the equipment moderately damages the roots. Equipment limitations are *severe* if many types of equipment cannot be used, if the time equipment cannot be used is more than 3 months in a year, or if the use of equipment severely damages the roots of trees and the structure and stability of the soils.

Erosion Hazard: Hazard of erosion is rated according to the risk of erosion on well-managed woodland that is not protected by special practices. It is *slight* where only a small loss of soil is expected, even when trees are harvested. The erosion hazard is *moderate* where a moderate loss of soil is expected if runoff is not controlled and vegetative cover is not adequate for protection. Where the erosion hazard is moderate, moderate practices are needed on skid trails and logging roads immediately after trees are harvested. The erosion hazard is *severe* where steep slopes, rapid runoff, and slow infiltration and permeability make the soil susceptible to severe erosion. In these areas harvesting and other operations should be done across the slopes as much as possible. Skid trails and logging roads should be laid out on mild slopes, and excess water should be disposed of carefully during logging. Immediately after logging, practices to control erosion should be used on the logging roads and skid trails.

Management by woodland suitability groups

In the following pages, the woodland suitability groups in the county are described and preferred trees are listed. Also given are site indexes for common trees and ratings of hazards to management.

The names of the soil series are mentioned in the description of each group, but this does not mean that all the soils of a given series appears in the group. To find the names of the soils in any given woodland suitability group, refer to the "Guide to Mapping Units" at the back of this soil survey.

WOODLAND SUITABILITY GROUP 1

This group consists of uneroded, deep, silty Memphis and Loring soils on nearly level to moderately steep slopes of the uplands. These soils are well drained and moderately fertile.

The trees preferred in existing stands are cherrybark oak, Shumard oak, water oak, white oak, sweetgum, yellow-poplar, and locally adapted pines. Trees suitable for planting are cherrybark oak, Shumard oak, sweetgum, yellow-poplar, and pines. Pines are preferred for planting on ridgetops and upper slopes, and hardwoods are better adapted to the lower slopes. Loblolly is the pine preferred for planting and in existing stands. The hardwoods in drainageways and at their heads should be encouraged, for they grow fairly well.

On ridges and upper slopes, the site index is 80 to 90 for loblolly pine and 60 to 70 for shortleaf pine. On middle and lower slopes, site index is 90 to 100 for loblolly pine and 65 to 75 for shortleaf pine. The site index is 95 to 104 for cherrybark oak, 80 to 89 for water oak, and 85 to 94 for sweetgum.

On the more gently sloping soils, plant competition is severe. It is moderate on stronger slopes. On slopes of 12 to 17 percent, the erosion hazard and equipment limitations are moderate. Seedling mortality, the erosion hazard, and equipment limitations are slight on slopes of less than 12 percent.

WOODLAND SUITABILITY GROUP 2

This group consists of eroded, deep, silty Memphis and Loring soils on gentle to steep slopes of the uplands. These soils are well drained and moderately fertile.

Both hardwoods and pines grow on these soils, but pines are preferred. All locally adapted species of pines are suitable for planting, but loblolly pine is preferred.

The hardwoods in drainageways and at their heads should be encouraged, for they grow fairly well.

On ridgetops and upper slopes, the site index of the soils in this group is 80 to 90 for loblolly pine and 60 to 70 for shortleaf pine. On middle and lower slopes, the site index is 90 to 100 for loblolly pine and 65 to 75 for shortleaf pine. The site index is 95 to 104 for cherrybark oak, 80 to 89 for water oak, and 85 to 94 for sweetgum.

Plant competition and seedling mortality are moderate on these soils. On the steeper slopes, the erosion hazard and equipment limitations are moderate.

WOODLAND SUITABILITY GROUP 3

In this group are well drained and moderately well drained silty Cascilla, Collins, and Vicksburg soils on stream bottoms. These soils are nearly level and moderately fertile.

Forests on these soils consist mainly of hardwoods, but there are a few pines. The trees preferred in existing stands are basswood, black cherry, cottonwood, cherrybark oak, Nuttall oak, southern red oak, swamp chestnut oak, water oak, willow oak, sweetgum, sycamore, yellow-poplar, and adapted pines. Trees suitable for planting are cottonwood, cherrybark oak, Nuttall oak, Shumard oak, swamp chestnut oak, sweetgum, sycamore, yellow-poplar, and all locally adapted pines. Loblolly pine is preferred for planting and in existing stands.

The site index on the soils of this group is 110 to 119 for cottonwood, 105 to 114 for cherrybark oak, 100 to 109 for water oak and willow oak, and 105 to 114 for sweetgum. The site index for loblolly pine is 100 to 110.

Plant competition is severe on the soils in this group.

WOODLAND SUITABILITY GROUP 4

Only Forestdale silty clay loam is in this group. This nearly level soil is in low areas on the alluvial plain of the Mississippi River and is poorly drained.

The trees preferred in the existing stand are cottonwood, cherrybark oak, Nuttall oak, overcup oak, willow oak, water oak, sweetgum, and sycamore. Cottonwood, Nuttall oak, and sycamore are preferred for planting. The site index is 90 to 99 for cottonwood, 85 to 94 for cherrybark oak and water oak, 80 to 89 for willow oak, and 85 to 94 for sweetgum.

Plant competition, seedling mortality, and equipment limitations are moderate.

WOODLAND SUITABILITY GROUP 5

In this group are poorly drained Alligator soils that were derived from fine-textured alluvium. These soils are in broad flats and depressions on the alluvial plain of the Mississippi River.

Wooded areas of these soils are in hardwoods with a dense undergrowth of brush, vines, briers, and canes. The trees preferred in existing stands are green ash, baldcypress, cottonwood, red maple, Nuttall oak, overcup oak, water oak, willow oak, and sweetgum. Green ash, baldcypress, cottonwood, Nuttall oak, and sweetgum are preferred for planting. The site index is 85 to 94 for cottonwood, 80 to 89 for cherrybark oak, and 70 to 79 for water oak, willow oak, and sweetgum.

Plant competition, seedling mortality, and equipment limitations are moderate. At times in winter and spring, the soils in this group are flooded and depressions are likely to remain ponded longer than the surrounding areas.

WOODLAND SUITABILITY GROUP 6

Dubbs silty clay loam is the only soil in this group. This well-drained soil occurs on the natural levees of the Mississippi River alluvial plain. These levees border the channels of former streams.

Hardwoods are better adapted to these soils than pines. The trees preferred in existing stands are cottonwood, cherrybark oak, Nuttall oak, Shumard oak, swamp chestnut oak, water oak, willow oak, pecan, sassafras, sweetgum, sycamore, and black tupelo. Trees preferred for planting are cottonwood, cherrybark oak, Nuttall oak, Shumard oak, sweetgum, and sycamore. The site index is 105 to 114 for cottonwood, 100 to 109 for cherrybark oak, and 95 to 104 for water oak, willow oak, and sweetgum.

Plant competition on the soil in this group is moderate.

WOODLAND SUITABILITY GROUP 7

This group consists of moderately well drained, somewhat poorly drained, and poorly drained, silty Collins, Falaya, and Waverly soils that occur on stream bottoms throughout the county.

Wooded areas of these soils are in hardwoods and a dense undergrowth of brush, vines, canes, and briers. The trees preferred in existing stands are white ash, green ash, cottonwood, hackberry, red maple, cherrybark oak, Nuttall oak, Shumard oak, swamp chestnut oak, overcup oak, water oak, willow oak, baldcypress, persimmon, sweetgum, sycamore, yellow-poplar, and adapted pines. Trees preferred for planting are cottonwood, cherrybark oak, Nuttall oak, swamp chestnut oak, sweetgum, sycamore, yellow-poplar, and all locally adapted pines. Loblolly is the pine preferred for planting and in existing stands.

On the soils that are not poorly drained, the site index is 105 to 114 for cottonwood, 95 to 104 for cherrybark oak, 90 to 99 for water oak and willow oak, and 100 to 109 for sweetgum. These soils have a site index of 90 to 105 for loblolly pine and of 80 to 90 for shortleaf pine. On the poorly drained soils of this group, the site index is slightly lower.

On the soils in this group, plant competition is severe for planted seedlings. Equipment limitations are moderate.

WOODLAND SUITABILITY GROUP 8

This group consists of severely eroded, silty Memphis and Loring soils. These nearly level to strongly sloping soils are well drained and moderately fertile.

On these soils pines are preferred in the existing stands and for planting. All locally adapted kinds of pine are suitable for planting, but loblolly pine is preferred for planting and in the existing stands.

The site index is 80 to 90 for loblolly pine and 60 to 70 for shortleaf pine. The site index is higher on the lower part of steep slopes than it is on the higher part.

On the soils in this group, the erosion hazard is severe, equipment limitation is severe, and seedling mortality is moderate. Plant competition is slight.

WOODLAND SUITABILITY GROUP 9

Only Henry silt loam is in this group. This poorly drained soil has a fragipan and occurs on nearly level uplands throughout the county.

Both hardwoods and pines grow on this soil. The trees preferred in existing stands are cherrybark oak, Shumard oak, water oak, white oak, sweetgum, and adapted pines. Trees preferred for planting are cherrybark oak, Shumard oak, sweetgum, and all locally adapted pines.

The site index is 80 to 89 for cherrybark oak, 70 to 79 for water oak, 65 to 74 for willow oak, and 80 to 89 for sweetgum. The site index is 80 to 90 for loblolly pine and 75 to 85 for shortleaf pine.

On the soil in this group, plant competition, seedling mortality, and equipment limitations are moderate.

WOODLAND SUITABILITY GROUP 10

In this group are somewhat poorly drained silty Calloway soils that have a fragipan. These soils are on nearly level and gently sloping second bottoms and uplands.

The soils of this group support both hardwoods and pines. Cherrybark oak, Shumard oak, willow oak, sweetgum oak, white oak, and adapted pines are preferred in existing stands. The trees preferred for planting are cherrybark oak, Shumard oak, sweetgum, and all locally adapted pines. Loblolly is the pine preferred for planting and in existing stands.

Site index is 85 to 94 for cherrybark oak, 75 to 85 for water oak, 70 to 79 for willow oak, and 90 to 99 for sweetgum. The site index is 90 to 100 for loblolly pine and 85 to 95 for shortleaf pine.

On the soils in this group, the erosion hazard is slight or moderate. Plant competition is moderate.

WOODLAND SUITABILITY GROUP 11

This group consists of moderately well drained, severely eroded, silty Dulac, Grenada, and Providence soils. These soils are on gentle and moderate slopes of the uplands. Wooded areas are mainly in hardwoods, but there are some pines. Adapted pines, particularly loblolly, are preferred for planting and in existing stands.

On ridges and upper slopes, the site index is 70 to 80 for loblolly pines and 60 to 70 for shortleaf pine. The site index is 90 to 99 for cherrybark oak, 80 to 89 for water oak, and 85 to 94 for sweetgum.

On the soils in this group, the erosion hazard is moderate or severe. Plant competition is slight.

WOODLAND SUITABILITY GROUP 12

Memphis silt loam, 17 to 40 percent slopes, is the only soil in this group. This well-drained, deep soil is on steep and very steep slopes in rough, hilly areas that border the alluvial plain of the Mississippi River.

Most areas of this soil are in hardwoods. In the existing stand, the trees preferred are white ash, basswood, black cherry, cottonwood, magnolia, cherrybark oak, Shumard oak, southern red oak, swamp chestnut oak, water oak, white oak, willow oak, persimmon, sassafras, sweetgum, black tupelo, yellow-poplar, and adapted pines. The trees preferred for planting are cherrybark oak, Shumard oak, swamp chestnut oak, sweetgum, sycamore, yellow-poplar, and all locally adapted pines. Pines are better suited to the ridges and upper slopes, and hardwoods are better adapted to the middle and lower slopes. Loblolly is the pine preferred for planting and in existing stands. The hardwoods in drainageways and at their heads should be encouraged, for they grow fairly well.

The site index is 100 to 109 for cottonwood, 110 to 119 for cherrybark oak, 95 to 104 for water oak and willow oak, and 105 to 114 for sweetgum. The site index for loblolly pine is 95 to 105 and for shortleaf pine is 80 to 90.

On the soil in this group, the erosion hazard and plant competition are severe.

WOODLAND SUITABILITY GROUP 13

In this group are moderately well drained, eroded, silty Grenada, Dulac, and Providence soils. These gently sloping and sloping soils have a fragipan. The Dulac soils are underlain by clay.

Pines are better suited to these soils than hardwoods. Adapted pines, particularly loblolly, are preferred for planting and in existing stands. The average site index for loblolly pine is 75 to 85, and for shortleaf pine is 60 to 70.

Plant competition and the erosion hazard are moderate on the soils in this group.

WOODLAND SUITABILITY GROUP 14

The only soil in this group is Memphis silt loam, 17 to 50 percent slopes, severely eroded. Shallow gullies are common on this well-drained soil.

About half of this soil is in trees. Adapted pines, particularly loblolly, are preferred for planting and in existing stands. The average site index for loblolly pine is 75 to 85.

The erosion hazard and equipment limitations are severe on this soil. Seedling mortality is moderate.

WOODLAND SUITABILITY GROUP 15

Only Mixed alluvial land is in this group. It consists of alluvium that was recently washed from loessal areas and from sandy areas of the Coastal Plain. This alluvium varies in texture, drainage, and available moisture capacity.

Willow and cottonwood are preferred in existing stands, but ash and oak also occur. Only the site index of cottonwood—100 to 120—has been estimated. Before other trees are planted, an investigation of the site is needed.

WOODLAND SUITABILITY GROUP 16

This group consists of areas of Gullied land that are sandy, silty, and clayey. Intricate patterns of gullies have formed on this land. Except in small areas between the gullies, the soil profile has been destroyed.

Pine trees are best adapted to Gullied land. Shortleaf pine should be encouraged in areas where it grows, but loblolly pine is best suited and is preferred for planting. Because the soil material varies, site indexes have not been estimated.

The erosion hazard and equipment limitations are moderate or severe. Seeding mortality varies, but it is generally moderate or severe.

WOODLAND SUITABILITY GROUP 17

Only Sandy alluvial land is in this group. It consists of very recent alluvium that washed from the sandy uplands during periods of flooding. The alluvium is made up of sand and loamy sand.

Willow and cottonwood are the trees preferred in the existing stands, and cottonwood is preferred for planting. The site index for cottonwood is 105 to 115. Because this land type varies, investigations are needed before sites are chosen for planting.

WOODLAND SUITABILITY GROUP 18

This group consists of sloping and moderately steep, well-drained Providence and Loring soils that are eroded in many places. Providence soils make up about 50 percent of the acreage of this group, and Loring soils make up about 40 percent. The rest consists of small areas of other soils.

The Providence soils have a friable silt loam surface layer and occur on the lower and middle slopes where the covering of loess is less than 48 inches thick. The Loring soils have a silt loam surface layer and occupy the upper slopes where the covering of loess is 48 inches thick or more. Both the Loring and Providence soils have a silty clay loam or silt loam subsoil and a fragipan. The fragipan is at a depth of 31 inches in the Loring soils, and of 26 inches in the Providence soils.

Almost all of the acreage of these soils is in hardwoods and pines. The trees preferred in existing stands are cherrybark oak, Shumard oak, water oak, white oak, sweetgum, yellow-poplar, and adapted pines. Pines are preferred for planting on the ridgetops and upper slopes, and hardwoods are better adapted to the lower slopes and the heads of drainageways. Loblolly is the pine preferred for planting.

On ridges and upper slopes, the site index is 80 to 90 for loblolly pine and 60 to 70 for shortleaf pine. On middle and lower slopes, the site index is 85 to 95 for loblolly pine and 65 to 80 for shortleaf pine.

The erosion hazard and plant competition are moderate or severe on the soils in this group.

WOODLAND SUITABILITY GROUP 19

In this group are moderately well drained, silty and clayey Tippah and Boswell soils that are mapped as complexes. About 55 percent of the acreage is Tippah soils, and 40 percent is Boswell soils. The rest consists of small areas of other soils. The soils in these complexes are strongly sloping to steep and occupy narrow ridgetops and fairly long side slopes. The Tippah soils are on the ridgetops and the upper parts of the slopes. Their silt loam surface layer is underlain by silty clay loam that extends to a depth of 20 inches and is underlain, in turn, by plastic clay. The Boswell soils are on sharp breaks and the lower parts of the slopes. Their fine sandy loam surface layer is underlain by plastic clay that is unmottled to a depth of 18 inches and mottled below that depth.

The soils in this group support pines and hardwoods. The trees preferred in existing stands are cherrybark oak, water oak, sweetgum, loblolly pine, and shortleaf pine. Pines are preferred for planting on the ridges and upper slopes, and hardwoods are preferred on the lower slopes. Cherrybark oak, Shumard oak, sweetgum, and adapted pines are suitable at the heads of small drainageways and in areas of local alluvium. The site index for loblolly pine is 80 to 90. Generally, the site index is higher on the Tippah soils than on the Boswell.

On the soils of this group, the erosion hazard is severe. Plant competition is moderate or severe on the Tippah soils and slight or moderate on the Boswell soils. The equipment limitations increase as the slope increases.

WOODLAND SUITABILITY GROUP 20

This group consists of complexes of steep, sandy, and silty Ruston and Providence soils on forested uplands. Some areas are eroded. About 45 percent of the acreage is Ruston soils, and about 40 percent is Providence soils. Cuthbert soils make up about 10 percent of each mapped area, and small areas of other soils make up the remaining 5 percent. The Ruston soils occur on the middle and lower parts of the slopes and have a friable sandy loam surface layer and a sandy clay loam subsoil. The subsoil is underlain by loamy sand to sandy clay loam. The Providence soils are on the narrow ridgetops and upper parts of the slopes and have a silt loam surface layer and a silty clay loam or silt loam subsoil. A fragipan begins at a depth of 24 inches.

In this group pines are preferred to hardwoods. On the Ruston soils loblolly and shortleaf pine are preferred in existing stands. On the Providence soils, the trees preferred are cherrybark oak, sweetgum, water oak, and loblolly and shortleaf pine. Loblolly pine is preferred for planting on both soils. The site index is 80 to 90 for loblolly pine and 65 to 75 for shortleaf pine.

On the soils in this group, the erosion hazard, equipment limitations, seedling mortality, and plant competition are moderate.

WOODLAND SUITABILITY GROUP 21

This group consists of well drained or moderately well drained Ruston, Providence, and Cuthbert soils in the Ruston-Providence association, hilly. About 36 percent of the association is Ruston soils, 28 percent is Providence soils, and 12 percent is Cuthbert soils. Other soils make up the rest. These soils are on hilly uplands in the northeastern part of the county. They occupy narrow, winding ridgetops and very steep side slopes that are cut by many short drainageways.

The Ruston soils occur on the middle and lower slopes and have a friable sandy loam surface layer. Their subsoil is sandy clay loam and is underlain by loamy sand to sandy clay loam. The Providence soils are on the narrow ridgetops and upper parts of slopes where there is a thin covering of loess. They have a friable silt loam surface layer, a silty clay loam or silt loam subsoil, and a fragipan at a depth of about 26 inches. The Cuthbert soils are generally on the upper slopes and short breaks above the heads of drainageways. They have a fine sandy loam surface layer and a heavy clay loam to clay subsoil.

Almost all of the acreage of this group is in pines and hardwoods (fig. 5). Hardwoods grow well on the nearly level ridgetops, but on the lower slopes, pines are

Figure 5.—A stand of good-quality hardwoods on Ruston-Providence association, hilly. The stand of young pines in the background is in a field that was once cultivated.

preferred for planting and in existing stands. All locally adapted pines are suitable, but loblolly is preferred. The site index is 80 to 90 for loblolly pine and 60 to 75 for shortleaf pine.

The erosion hazard and equipment limitations are severe on the Ruston and Cuthbert soils and moderate on the Providence soils. Seedling mortality is slight on the Ruston soils.

WOODLAND SUITABILITY GROUP 22

This group consists of a complex of steep or very steep Memphis and Guin soils. These soils occur in about equal acreage and in a uniform pattern. The Memphis soil makes up about 50 percent of the complex and is on the ridgetops and upper parts of the slopes. This well-drained soil has a silt loam surface layer and a silt loam to silty clay loam subsoil. The Guin soil makes up about 45 percent of the complex and is on the middle and lower parts of the slopes. It has a gravelly sandy loam or gravelly fine sandy loam surface layer and a gravelly sand to gravelly sandy clay loam subsoil. The remaining 5 percent of this complex consists of well-drained, silty and gravelly soils in narrow bands between the Memphis and Guin soils. These bands do not significantly affect management.

The soils of this group are mainly in hardwoods. Pines and hardwoods are adapted to the ridgetops and upper slopes, and pines are adapted to the middle and lower slopes. Hardwoods grow fairly well in drainageways and at their heads. The trees preferred in existing stands are pines, cherrybark oak, Shumard oak, southern red oak, water oak, willow oak, and sweetgum. The trees preferred for planting are cherrybark oak, Shumard oak, sweetgum, and all locally adapted pines. Loblolly is the preferred pine.

On the Memphis soil, the site index is 100 to 109 for cottonwood, 110 to 119 for cherrybark oak, 95 to 104 for water oak and willow oak, 105 to 114 for sweetgum, 95 to 105 for loblolly pine, and 80 to 90 for shortleaf pine. On the Guin soil, the site index is 62 to 68 for loblolly pine and 55 to 65 for shortleaf pine.

The erosion hazard, equipment limitations, and plant competition are severe.

WOODLAND SUITABILITY GROUP 23

This group consists of moderately steep and very steep Providence, Loring, and Ruston soils in the Providence-Loring association, hilly. Providence soils make up about 34 percent of the association; Loring soils, about 19 percent; and Ruston soils, about 17 percent. The rest of the association consists of small areas of Memphis, Cuthbert, and Collins soils. The soils in this association occur on hilly uplands in the central part of the county. They occupy narrow, winding ridgetops and very steep

side slopes that are cut by many short drainageways. Practically all of the acreage is wooded. Slopes range from 17 to more than 50 percent.

The Providence soils are on the narrow ridgetops and upper parts of side slopes where the covering of loess is less than 48 inches thick. The Loring soils are on the slightly broader ridgetops and the upper parts of the slopes where the covering of loess is more than 48 inches thick. The Ruston soils are mainly on the lower slopes.

Both pines and hardwoods grow on these soils, but pines are preferred. The trees preferred in existing stands are cherrybark oak, Shumard oak, white oak, water oak, sweetgum, sycamore, yellow-poplar, and adapted pines. Trees preferred for planting are cherrybark oak, Shumard oak, sweetgum, and all locally adapted pines. Loblolly is the preferred pine. Hardwoods generally grow fairly well in drainageways and at their heads.

On the ridgetops and upper slopes that are occupied by Providence and Loring soils, the site index is 90 to 99 for cherrybark oak, 79 to 91 for loblolly pine, and 59 to 69 for shortleaf pine. On the lower slopes occupied by Ruston soils, the site index is 80 to 88 for loblolly pine and 71 to 79 for shortleaf pine.

Plant competition is moderate on the Providence soils and severe on the Loring soils. The erosion hazard and equipment limitations are moderate or severe on both soils.

WOODLAND SUITABILITY GROUP 24

This group consists of moderately steep Cuthbert and Ruston soils in complexes. The Cuthbert soils, on the middle and lower parts of the slopes, make up about 45 percent of each area mapped. They have a sandy loam surface layer over clay loam or clay. Below a depth of about 15 inches is thinly layered clay and sand or clay shale. The Ruston soils make up about 40 percent and are mainly on the upper and middle parts of the slopes. They have a fine sandy loam surface layer, a sandy loam or loam subsoil, and sandy loam or sandy clay loam underlying material. The other minor soils that make up the remaining 15 percent of each area mapped do not have a significant effect on management.

Both hardwoods and pines grow on these soils, but pines are preferred for planting and in existing stands. Although all locally adapted kinds of pines are suitable, loblolly pine is preferred.

On the Cuthbert soils, the site index is 70 to 82 for loblolly pine and 60 to 68 for shortleaf pine. On the Ruston soils, the site index is 80 to 88 for loblolly pine and 65 to 75 for shortleaf pine.

The erosion hazard is moderate on the Ruston soils and severe on the Cuthbert soils. Plant competition and the equipment limitations are moderate on both soils.

WOODLAND SUITABILITY GROUP 25

This group consists of associations of steep Ruston and Cuthbert soils on rough hilly uplands that are wooded in most places. These soils occupy narrow, winding ridgetops and very steep side slopes that are cut by many short drainageways. The Ruston soils are on the very steep middle and upper slopes. They have a fine sandy loam or sandy loam surface layer and a sandy clay loam or loam subsoil. The underlying material is loamy sand and sandy clay loam. The Cuthbert soils are generally on the middle and lower slopes and, in some places, on sharp breaks above the heads of drainageways. These soils have a fine sandy loam surface layer. Their clay loam to clay subsoil is underlain by thinly layered clay and sand or clay shale.

The soils of this group are well suited to pines. Pines, particularly loblolly, are preferred for planting and in existing stands.

On the Ruston soils, the site index is 80 to 90 for loblolly pine and 70 to 80 for shortleaf pine. On the Cuthbert soils, the site index is 70 to 82 for loblolly pine and 60 to 70 for shortleaf pine.

The erosion hazard and equipment limitations are severe on the soils in this group. Plant competition and seedling mortality are moderate.

Engineering Uses of Soils [3]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, pipelines, building foundations, facilities for water storage, erosion control structures, drainage systems, and sewage disposal systems. The properties most important to the engineer are permeability to water, shear strength, ease or difficulty of compaction, soil drainage, shrink-swell potential, grain size, plasticity, and reaction (pH). Topography and depth to the water table are also important.

Information in this soil survey can be used to—

(1) Make soil and land use studies that will aid in selecting and developing sites for industries, businesses, residences, and recreational areas.
(2) Make preliminary estimates of the engineering properties of soils in the planning of agricultural drainage systems, farm ponds, irrigation systems, and diversion terraces.
(3) Make preliminary evaluations of soil and ground conditions that will aid in selecting locations for highways, airports, pipelines, and cables, and in planning detailed investigations at the selected locations.
(4) Locate probable sources of gravel and other construction materials.
(5) Correlate performance of engineering structures with soil mapping units so as to develop information for overall planning that will be useful in designing and maintaining engineering practices and structures.
(6) Determine the suitability of soil mapping units for cross-country movement of vehicles and construction equipment.
(7) Supplement the information obtained from other published maps and reports and aerial photographs for the purpose of preparing maps and reports that can be used readily by engineers.
(8) Develop other preliminary estimates for construction purposes pertinent to the area.

[3] RAY C. HUBBARD, agricultural engineer, Soil Conservation Service, assisted in preparing this subsection.

With the use of the soil map for identification, the engineering interpretations in this subsection can be useful for many purposes. It should be emphasized that they may not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads and where the excavations are deeper than the depths of layers here reported. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

In addition to this subsection, other sections of the survey, including "Descriptions of the Soils" and "Forma-

TABLE 4.—*Estimated physical and*

Soil series and map symbol	Depth from surface	Classification		
		USDA texture	Unified	AASHO
Alligator:	*Inches*			
Clay (Ac, Ad, At).	0–48	Clay	CH	A–7
Silty clay loam (As, At).	0–5	Silty clay loam	CL	A 6 or A 7
	5–48	Clay	CH	A–7
Boswell (BtF, TbD, TbD2, TbE, TbE2).	0–4	Fine sandy loam	SM	A–4
(For properties of the Tippah soil in these mapping units, refer to the Tippah soil series in this table.)	4–60	Clay	CH	A–7
Calloway (CaA, CaB).	0–8	Silt loam	ML	A–4
	8–16	Silt loam	ML or CL	A–6
	16 45	Silt loam to silty clay loam.	ML or CL	A 6
	45–60	Silt loam	ML	A–4
Cascilla (Cc).	0–7	Silt loam	ML	A–4
	7–59	Silt loam	ML or CL	A–6
	59–72	Fine sandy loam	SM or ML	A–4
Collins (Cm, Cn, Fc).	0–60	Silt loam	ML	A–4
(For properties of the Falaya soil in mapping unit Fc, refer to the Falaya soil series in this table.)				
Cuthbert (CrF, CxE, CxE2, RcF).	0–4	Fine sandy loam	SM	A–4
(For properties of the Ruston soil in these mapping units, refer to the Ruston soil series in this table.)	4–15	Clay loam to clay	CL or CH	A–7
	15–65	Clay	CH	A–7
Dubbs (Db).	0–7	Silty clay loam	CL	A–6
	7 33	Silty clay loam	CL	A–6 or A–7
	33–48	Silty clay loam	ML or CL	A–6 or A–7
Dulac (DuB2, DuC2, DuC3).	0–5	Silt loam	ML	A–4
	5–18	Silty clay loam	CL	A–6 or A–7
	18–36	Silt loam	ML or CL	A–6
	36–60	Clay	CH	A–7
Falaya (Ff, Fl, Fc, Wf).	0–60	Silt loam	ML	A–4
(For properties of the Collins soil in mapping unit Fc, and those of the Waverly soil in unit Wf, refer in this table to the Collins and the Waverly soil series, respectively.)				
Forestdale (Fo).	0–10	Silty clay loam	CL	A–6 or A–7
	10–31	Silty clay	CH	A 7
	31–48	Silty clay	CL	A 6 or A 7
Grenada (GrA, GrB2, GrB3, GrC2, GrC3).	0–7	Silt loam	ML	A–4
	7–22	Silt loam	ML or CL	A–6
	22–60	Silt loam	ML or CL	A–6
Guin (MgF).	0–30	Gravelly silt loam	SM	A–2, A–4
(For properties of the Memphis soil in this mapping unit, refer to the Memphis soil series in this table.)	30–72	Gravelly silty clay loam.	GC	A 2
Henry (He).	0–4	Silt loam	ML	A–4
	4–16	Silt loam	ML or CL	A–6
	16–41	Silt loam	ML or CL	A–6
	41–60	Silt loam	ML or CL	A–6

tion, Classification, and Morphology of Soils", are useful to engineers. Some of the terms used by the soil scientists may be unfamiliar to the engineer, and some terms have a special meaning in soil science. These terms, as well as other special terms used in the soil survey, are defined in the Glossary at the back of this report.

Much of the information in this section is given in tables 4 and 5. In table 4 the physical and chemical properties of the soils that are important to engineering are estimated. The estimates are based on test data obtained for similar soils in neighboring counties. Table 5 indicates the suitability of the soils for various engineering uses.

chemical properties of the soils

Percentage passing sieve—			Permeability	Available water capacity	Reaction	Dispersion	Shrink-swell potential
No. 4	No. 10	No. 200					
			Inches per hour	*Inches per inch of soil*	*pH value*		
100	100	95–100	<0. 20	0. 18	4. 5–5. 5	Low	Very high.
100	100	90–100	<0. 20	. 21	4. 5–5. 5	Low	Very high.
100	100	95–100	<0. 20	. 18	4. 5–5. 5	Low	Very high.
100	100	40–50	0. 80–2. 50	. 23	4. 0–5. 0	High	Low.
100	100	80–100	<0. 20	. 18	4. 0–5. 0	Low	High.
100	100	95–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	95–100	0. 63–2. 0	. 21	4. 5–5. 5	Moderate	Low.
100	100	95–100	<0. 20	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	90–100	0. 20–0. 63	. 23	4. 5–5. 5	Moderate	Low.
100	100	90–100	0. 63 -2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63 -2. 0	. 23	4. 5–5. 5	High	Low.
100	100	45–60	0. 80–2. 5	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	Hig	Low.
100	100	40 50	0. 80–2. 5	. 16	4. 0–5. 0	High	Low.
100	100	70–90	0. 20 -0. 80	. 18	4. 0–5. 0	Moderate	High.
100	100	70–90	<0. 20	<. 10	4. 0–5. 0	Low	High.
100	100	90–100	0. 20–0. 63	. 21	4. 5–6. 5	Moderate	Moderate.
100	100	90–100	0. 20–0. 63	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	80–95	0. 20–0. 63	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	90–100	0. 63 2. 0	. 23	4. 5 -5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	90–100	<0. 20	. 21	4. 5–5. 5	Moderate	Low.
100	100	90–100	<0. 20	. 17	4. 5–5. 5	Low	High.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 20–0. 60	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	95–100	<0. 20	. 19	4. 5–5. 5	Low	High.
100	100	90–100	0. 20–0. 60	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	Moderate	Moderate.
100	100	90–100	<0. 20	. 21	4. 5–5. 5	Moderate	Moderate.
80–90	50–60	30–40	>5. 0	. 10	4. 5–5. 5	High	Low.
50–60	40–50	25–35	>5. 0	<. 10	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	<0. 20	. 21	4. 5–5. 5	Moderate	Low.
100	100	90–100	0. 20–0. 63	. 23	4. 5–5. 5	High	Moderate.

TABLE 4.—*Estimated physical and chemical*

Soil series and map symbol	Depth from surface	Classification		
		USDA texture	Unified	AASHO
	Inches			
Loring (LoA, LoB2, LoB3, LoC2, LoC3, LoD2, LoD3, PaF, PcD2, PcE, PcE2). (For properties of the Providence soil in mapping units PaF, PcD2, PcE, and PcE2, refer to the Providence soil series in this table.)	0–6	Silt loam	ML	A-4
	6–29	Silty clay loam	CL	A-6 or A-7
	29–60	Silt loam	ML or CL	A-6
Memphis silt loam (MeA, MeB2, MeC3, MeD3, MeE, MeE2, MeF, MeF3, MgF). (For properties of the Guin soil in mapping unit MgF, refer to the Guin soil series in this table.)	0–7	Silt loam	ML	A-4
	7–42	Silty clay loam	CL	A-6 or A-7
	42–58	Silt loam	ML or CL	A-6
	58–80	Silt loam	ML or CL	A-6
Providence (PrC2, PrC3, PaF, PcD2, PcE, PcE2, RpF, RxE, RxE2). (For properties of the Loring soil in mapping units PaF, PcD2, PcE, and PcE2, and those of the Ruston soil in units RpF, RxE, and RxE2, refer in this table to the Loring and the Ruston soil series, respectively.)	0–5	Silt loam	ML	A-4
	5–24	Silty clay loam	CL	A-6 or A-7
	24–32	Silt loam	ML or CL	A-6
	32–60	Sandy loam	SM	A-2, A-4
Ruston (RcF, RpF, RxE, RxE2, CrF, CxE, CxE2). (For properties of the Cuthbert soil in mapping units RcF, CrF, CxE, and CxE2, and for those of the Providence soil in mapping units RpF, RxE, and RxE2, refer in this table to the Cuthbert and the Providence soil series, respectively.)	0–16	Fine sandy loam	SM	A-4
	16–29	Sandy clay loam	ML or CL	A-6
	29–60	Fine sandy loam	SM	A-4
Tippah (TbD, TbD2, TbE, TbE2, BtF). (For properties of the Boswell soil in all these mapping units, refer to the Boswell soil series in this table.)	0–6	Silt loam	ML	A-4 or A-7
	6–20	Silty clay loam	CL	A-6
	20–60	Clay	CH	A-7
Vicksburg (Vb, Vc).	0–48	Silt loam	ML	A-4
Waverly (Ws, Wf). (For properties of the Falaya soil in mapping unit Wf, refer to the Falaya soil series in this table.)	0–24	Silt loam	ML	A-4
	24–60	Silt loam	ML or CL	A-4

TABLE 5.—*Interpretations of*

Soil series and map symbol [1]	Suitability as source of—				Soil features affecting—	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Alligator (Ac, Ad, As, At)	Poor	Not suited	Not suited	Poor	Low position; very high shrink-swell potential.	Very high shrink-swell potential.
Boswell (BtF, TbD, TbD2, TbE, TbE2). (For properties of the Tippah soil in all these mapping units, refer to the interpretations of the Tippah soil series in this table.)	Poor	Not suited	Not suited	Poor	High shrink-swell potential.	Slow permeability; fair suitability.
Calloway (CaA, CaB)	Poor to fair.	Not suited	Not suited	Fair	Seasonal high water table; fragipan impedes internal drainage; nearly level to gentle slopes.	Low or fair strength and stability; low shrink-swell potential.

See footnote at end of table.

properties of the soils—Continued

Percentage passing sieve—			Permeability	Available water capacity	Reaction	Dispersion	Shrink-swell potential
No. 4	No. 10	No. 200					
			Inches per hour	*Inches per inch of soil*	*pH value*		
100	100	90–100	0. 63–2. 0	0. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	90–100	<0. 20	. 23	4. 5–5. 5	Moderate	Moderate.
100	100	95–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	95–100	0. 63–2. 0	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	95–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	95–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–95	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	90–95	0. 20–0. 63	. 17	4. 5–5. 5	Moderate	Low.
100	100	30–45	0. 63–2. 0	. 14	4. 5–5. 5	High	Low.
100	100	40–50	0. 80–2. 5	. 16	4. 5–5. 5	High	Low.
100	100	60–70	0. 80–2. 5	. 17	4. 5–5. 5	Moderate	Moderate.
100	100	40–50	0. 80–2. 5	. 15	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 21	4. 5–5. 5	Moderate	Moderate.
100	100	90–100	<0. 20	. 18	4. 5–5. 5	Low	High.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90–100	0. 63–2. 0	. 23	4. 5–5. 5	High	Low.
100	100	90 100	0. 20–0. 63	. 21	4. 5–5. 5	Moderate	Moderate.

engineering properties of the soils

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Impervious material; supports deep water.	Very slow permeability; cracks when dry.	Surface drainage needed.	High initial infiltration when cracked; infiltration slows as soil moistens.	Not suited	Low, nearly level position; sod easily established.
Slow permeability	Fair strength and stability.	Not needed	Moderate or slow infiltration; slow permeability.	Soil properties favorable.	Strong to very steep slopes; sod fairly easily established.
Moderate or slow permeability.	Low or fair strength and stability.	Surface drainage needed in level areas.	Slow infiltration; medium or low available water capacity.	Soil properties favorable.	Nearly level to gentle slopes; sod difficult to establish because of fragipan.

TABLE 5.—*Interpretations of engineering*

Soil series and map symbol [1]	Suitability as source of—				Soil features affecting—	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Cascilla (Cc)	Good	Not suited	Not suited	Fair	Soil properties favorable.	Fair stability
Collins (Cm, Cn, Fc) (For properties of the Falaya soil in mapping unit Fc, refer to interpretations of the Falaya soil series in this table.)	Good	Not suited	Not suited	Fair	Flood plain; subject to flooding.	Low or fair strength and stability.
Cuthbert (CrF, CxE, CxE2, RcF). (For properties of the Ruston soil in all these mapping units, refer to the interpretations of the Ruston soil series in this table.)	Good in top 4 inches; poor below.	Not suited	Not suited	Poor	Moderate shrink-swell potential in subsoil.	Fair strength and stability.
Dubbs (Db)	Good	Not suited	Not suited	Fair	Moderate shrink-swell potential.	Slow permeability; fair or good strength and stability.
Dulac (DuB2, DuC2, DuC3)	Fair	Not suited	Not suited	Poor; underlain by plastic clay.	Gentle to strong slopes; fragipan improves internal drainage.	Fair or low strength and stability.
Falaya (Ff, Fl, Fc, Wf) (For properties of the Collins soil in mapping unit Fc, and for those of the Waverly soil in unit Wf, refer in this table to the Collins and Waverly soil series, respectively.)	Good	Not suited	Not suited	Fair	Flood plain; subject to flooding.	Low strength and stability.
Forestdale (Fo)	Poor	Not suited	Not suited	Poor	Moderate or high shrink-swell potential.	Fair or good strength and stability.
Grenada (GrA, GrB2, GrB3, GrC2, GrC3).	Fair	Not suited	Not suited	Fair	Nearly level to moderate slopes; fragipan impedes internal drainage.	Fair or low strength and stability.
Guin (MgF) (For properties of the Memphis soil in this mapping unit, refer to the interpretations of the Memphis soil series in this table.)	Poor	Poor	Good	Good to fair.	Soil properties favorable; very steep slopes.	Good strength and stability.
Henry (He)	Poor	Not suited	Not suited	Fair	Nearly level slopes; seasonal high water table.	Low or fair strength and stability.

See footnote at end of table.

properties of the soils—Continued

Soil features affecting—Continued

Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Moderate permeability; underlain by material that has moderately rapid permeability.	Fair stability	Surface drainage needed.	Slow infiltration; high available water capacity.	Soil properties favorable.	Nearly level position; sod easily established.
Moderate permeability.	Low or fair strength and stability.	Surface drainage needed.	Slow infiltration; high available water capacity.	Soil properties favorable; terraces not needed.	Low, nearly level position; sod easily established.
Slow permeability	Fair strength and stability.	Not needed	Moderate or slow infiltration; medium or low available water capacity.	Soil properties favorable.	Steep or very steep slopes; sod difficult to establish.
Slow permeability	Fair or good strength and stability.	Surface drainage needed.	Slow infiltration; high available water capacity.	Not needed	Nearly level position; sod easily established.
Moderate or slow permeability.	Fair or low strength and stability.	Not needed	Slow infiltration; medium or high available water capacity.	Soil properties favorable.	Moderate slopes; highly erodible; sod easily established.
Moderate permeability.	Low strength and stability.	Surface drainage needed.	Slow infiltration; high available water capacity.	Soil properites favorable; terraces not needed.	Low, nearly level position; sod easily established.
Slow permeability	Fair or good strength and stability.	Surface drainage needed.	Slow infiltration; medium or high available water capacity.	Not needed	Low, nearly level position; sod easily established.
Moderate or slow permeability.	Fair or low strength and stability.	Row arrangement needed on level slopes.	Slow infiltration; medium or high available water capacity.	Soil properties favorable.	Nearly level to moderate slopes; highly erodible; sod easily established.
Rapid permeability	Good strength and stability.	Not needed	Soil features poor for farming.	Not applicable	Very steep; gravelly.
Moderate or slow permeability.	Low or fair strength and stability.	Row arrangement needed on level areas.	Slow infiltration; high or medium available water capacity.	Soil properties favorable.	Nearly level to steep slopes; highly erodible; sod easily established.

TABLE 5.—*Interpretations of engineering*

Soil series and map symbol [1]	Suitability as source of—				Soil features affecting—	
	Topsoil	Sand	Gravel	Road fill	Highway location	Dikes or levees
Loring (LoA, LoB2, LoB3, LoC2, LoC3, LoD2, LoD3, PaF, PcD2, PcE, PcE2). (For properties of the Providence soil in mapping units PaF, PcD2, PcE, and PcE2, refer to the interpretations of the Providence soil series in this table.)	Fair	Not suited	Not suited	Fair	Nearly level to strong slopes.	Low or fair strength and stability.
Memphis (MeA, MeB2, MeC3, MeD3, MeE, MeE2, MeF, MeF3, MgF). (For properties of the Guin soil in mapping unit MgF, refer to the interpretation of the Guin soil series in this table.)	Good	Not suited	Good in local areas that are underlain by beds of gravel.	Fair	Soil properties fair; nearly level to very steep slopes.	Low or fair strength and stability.
Providence (PrC2, PrC3, PaF, PcD2, PcE, PcE2, RpF, RxE, RxE2). (For properties of the Loring soil in mapping units PaF, PcD2, PcE, and PcE2, and for those of the Ruston soil in units RpF, RxE, and RxE2, refer in this table to the interpretations of the Loring and Ruston soil series, respectively.)	Fair	Underlying material is good in some areas.	Not suited	Good	Soil properties fair; moderate to steep slopes.	Moderate strength and stability.
Ruston (RcF, RpF, RxE, RxE2, CrF, CxE, CxE2). (For properties of the Cuthbert soil in mapping units RcF, CrF, CxE, and CxE2, and for those of the Providence soil in units RpF, RxE, and RxE2, refer in this table to the interpretations of the Cuthbert and Providence soil series, respectively.)	Good	Underlying material is good in some areas.	Not suited	Good	Soil properties favorable; steep and very steep slopes.	Good strength and stability.
Tippah (TbD, TbD2, TbE, TbE2, BtF). (For properties of the Boswell soil in all these mapping units, refer to the interpretation of the Boswell soil series in this table.)	Fair	Not suited	Not suited	Poor; underlain by clay.	Underlain by clay; moderate to steep slopes.	Fair or low strength and stability.
Vicksburg (Vb, Vc)	Good	Not suited	Not suited	Fair	Flood plain; subject to flooding.	Low or fair strength and stability.
Waverly (Ws, Wf) (For properties of the Falaya soil in mapping unit Wf, refer to the interpretations of the Falaya soil series in this table.)	Poor	Not suited	Not suited	Fair	Flood plain; subject to flooding.	Low strength and stability.

[1] Borrow area, Gravel pits, Gullied land, Mixed alluvial land, Sandy alluvial land, and Sand pits have variable properties and are not listed in this table.

properties of the soils—Continued

Soil features affecting—Continued					
Farm ponds		Agricultural drainage	Irrigation	Terraces and diversions	Waterways
Reservoir area	Embankment				
Slow permeability	Low or fair strength and stability.	Surface drainage needed.	Slow infiltration; low available water capacity.	Soil properties favorable; terraces not needed.	Nearly level position; sod difficult to establish because of fragipan.
Moderate permeability.	Low or fair strength and stability.	Row arrangement needed on level areas.	Slow infiltration; high available water capacity.	Soil properties favorable.	Nearly level to very steep; highly erodible; sod easily established.
Moderate or slow permeability.	Moderate strength and stability.	Not needed	Slow infiltration; medium available water capacity.	Soil properties favorable.	Sloping to steep; erodible; sod grows well.
Generally moderate permeability; underlying material rapidly permeable in some areas.	Good strength and stability.	Not needed	Moderate infiltration; medium available water capacity.	Soil properties favorable.	Steep to very steep; erodible; sod grows well.
Moderate or slow permeability.	Fair or low strength and stability.	Not needed	Slow infiltration; medium or high available water capacity.	Soil properties favorable.	Sloping to steep; erodible; sod grows well.
Moderate permeability.	Low or fair strength and stability.	Surface drainage needed.	Slow infiltration; high available water capacity.	Soil properties favorable; terraces not needed.	Nearly level; sod grows well.
Moderate or slow permeability.	Low strength and stability.	Surface drainage needed.	Slow infiltration; high available water capacity.	Soil properties favorable; terraces not needed.	Low, nearly level position; sod grows well.

Engineering classification systems

Two systems of classifying soils are in general use among engineers. One is the system approved by the American Association of State Highway Officials (AASHO) (*1*), and the other is the Unified system adopted by the Corps of Engineers, U.S. Army (*12*). Both systems are used in this report and are explained in the following paragraphs. The explanations are taken largely from the PCA Soil Primer (*5*).

AASHO classification system.—Most highway engineers classify soil materials according to the AASHO system. In this system soil material is classified in seven principal groups. The groups range from A–1, consisting of gravelly soils having high bearing capacity, to A–7, consisting of clayey soils having low strength when wet. Within each of the principal groups, the relative engineering value of the soil material is indicated by a group index number. Group index numbers range from 0 for the best material to 20 for the poorest material. The estimated AASHO classification of the soils in the county, without the group index number, is given in table 4.

Unified classification system.—Some engineers prefer to use the Unified system of soil classification. This system is based on the identification of soils according to their texture and plasticity and their performance as materials in engineering structures. Soil material is identified as coarse grained (8 classes), fine grained (6 classes), or highly organic. Table 4 shows the estimated Unified classification of the soils in the county.

Estimated physical and chemical properties of soils

Listed in table 4 are estimates of the physical and chemical properties of the soils in each series of the county. The table does not include the land types—Borrow area, Gravel pits, Gullied land, Mixed alluvial land, Sandy alluvial land, and Sand pits. These land types are so variable that estimating their properties is not practical.

The estimates in table 4 are for the soil material at a depth of less than 7 feet and are not representative of material in deep excavations. The depth to bedrock is not given in table 4, because bedrock lies at such a great depth in this county that it does not interfere with highway and agricultural engineering.

In table 4 the column that shows permeability gives the estimated rate, expressed in inches per hour, at which water moves through a soil that is not compacted. The estimates are based on the structure and porosity of the soil. In building foundations, highways, railroad embankments, and high subgrades, permeability is important because the settlement of the structure depends on the rate at which moisture is squeezed from underneath the structure. Also, permeability ought to be considered when selecting soil material to be used for fill. To a large degree, permeability determines the effectiveness of open ditches and tile for drainage and of disposal fields for sewage. It is also important where irrigation is planned.

The available water capacity is expressed in table 4 in inches per inch of soil depth. It is the amount of water available to plants when the soil is wet to field capacity. This amount of water will wet an air-dry soil to a depth of 1 inch without deeper penetration.

In the column headed "Reaction," the degree of acidity or alkalinity is expressed in pH values. The pH of a neutral soil is 7.0, of an acid soil is less than 7.0, and of an alkaline soil is more than 7.0.

The rating for dispersion indicates the degree that a soil deflocculates and suspends in water. A rating of high means that the soil particles slake readily.

The rating for shrink-swell potential indicates how much a soil changes in volume as its moisture content changes. This rating is based on tests for volume change that were made on similar soils in adjacent counties, or it is based on observations of other properties of the soils. In general, soils classified as CH and A–7 have a high shrink-swell potential. Clean sands and gravel that contain small amounts of nonplastic to slightly plastic fines have a low shrink-swell potential.

Engineering interpretations of soils

In table 5 the suitability of the soils for various engineering uses is given. Also listed are soil features that affect highway locations and conservation engineering.

The suitability of the soils for topsoil is rated in table 5 because topsoil is needed so that protective vegetation can be grown to control erosion in ditches and on embankments, road shoulders, and cut slopes.

Table 5 shows that the Guin soils are a good source of gravel in this county, and that the Memphis soils are a good source of gravel in some areas. The only sand in the county good for construction material is in the sandy strata underlying the Ruston and the Providence soils.

Many of the soils in the county have a high water table for part of each year. Roads built on these soils require an embankment or a good system of underdrains and surface drains. Embankments that are several feet above the level of flooding are needed in the lowlands in areas of the Collins, Falaya, Vicksburg, Waverly, and other soils subject to flooding.

A compacted layer, or fragipan, is near the surface in the Calloway, Dulac, Grenada, Henry, Loring, and Providence soils. Because this layer impedes drainage through the soil, water collects above it and forms a perched water table. The effects of the fragipan should be considered when a roadway is designed.

In nearly level areas, side ditches should extend below the fragipan and the pavement should be at least 4 feet above the top of the fragipan. In steeper areas, road cuts normally extend below the fragipan, but adequate underdrainage is needed where the construction changes from a cut to a fill. This underdrainage can be provided by excavating the fragipan and replacing it with a more permeable material. Similarly, permeable material can be used to replace the very plastic clay in the subsoil of the Alligator and Boswell soils and to replace the clay layer underlying the Tippah soils.

Even in areas where drainage is not needed, clayey material should be covered with a porous base course of sand and gravel to prevent pumping action under traffic. A thin layer of sand directly over the clay minimizes the amount of clay that intrudes into the overlying gran-

ular material of the base course. Clayey material is most subject to pumping action, but other kinds of material are also affected, especially where an undrained fragipan is a few inches to a foot or two below the pavement.

Dikes and levees are used to protect areas from floodwater or from excessive runoff from adjacent areas. The levees and dikes are subjected to periods of wetting and drying. The stability of dikes and levees is lessened if the soils crack when they dry. Also important is the strength against shearing. Strength and stability are rated in table 5.

Farm ponds are used in this county as a source of water for livestock and for recreation. To determine the suitability of the soils for farm ponds, careful examination of the reservoir area and of material used in the embankments is needed. Areas of impervious or slowly permeable soils are suitable for reservoirs. Soil features important for embankments are similar to those required for dikes and levees.

Under the heading "Agricultural drainage," the soils that do not require drainage are designated. Also designated are the soils that require only a simple arrangement of rows for draining excessive surface water into large ditches or canals.

The effectiveness of irrigation water largely depends on the rate that water enters the soil (infiltration) and the amount of available water that the soil holds within the root zone. These soil features are listed in table 5 for the soils of the county.

Terraces are used to intercept water on sloping soils and to remove it at a rate that does not cause harmful erosion. In other areas onrushing water from adjoining areas is likely to damage soils. Diversions (fig. 6) are installed to route this water over more suitable areas. Soils that have slopes greater than about 8 percent are too steep for terraces. Whether or not a soil is shallow over rock also may determine the suitability of the soil for terraces or diversions. In table 5 soils are described as not suited to terraces and diversions, as not needing them, or as having soil features favorable for their construction.

The features that affect the use of the soils for waterways are also shown in table 5. Among these features are erodibility, slope, and kind of soil material. Also important is the suitability of the soil for sod.

Use of Soils for Recreation

Grenada County is suitable for year-round outdoor recreation because the climate and location are favorable. People can enjoy themselves on golf courses and in picnicking, hunting, and fishing areas. Grenada Lake has several thousand acres of open water on which there are boating, swimming, and water skiing. Around the lake many areas have been developed into parks and places for picnicking and camping, and many more could be developed along this lake and other lakes in the county. More recreational areas will be needed as the

Figure 6.—A diversion constructed to prevent water from adjacent hilly areas from flooding Collins silt loam.

population of Grenada County and the surrounding areas increases.

The limitations and hazards that affect the suitability of the soils as sites for houses and for recreational uses are rated in table 6. The ratings are *slight*, *moderate*, *severe*, and *very severe*. A rating of slight means that the soil has few or no limitations for the use specified or that the limitations can be easily overcome. A rating of moderate indicates that some planning and engineering practices are needed to overcome the limitation. A rating of severe indicates that the soil is poorly suited to the use specified and that intensive engineering practices, as well as a large investment, are needed to overcome the problems. A rating of very severe indicates that the soil is very poorly suited to the use specified and that practices to overcome the limitation are not economically feasible.

Houses using public or community sewage systems.—These are houses of three stories or less that are serviced by a public or community sewage system. The properties important in evaluating the soils for this use are bearing value, shrink-swell potential, water table,

TABLE 6.—*Limitations to use of soils as recreational areas*

[Absence of rating means the mapping unit is so variable that rating it is impractical]

Soil	Houses using public or community sewage systems	Filter fields for sewage-disposal systems	Campsites	Picnic areas	Intensive play areas	Golf fairways	Trafficways
Alligator clay	Severe	Very severe	Severe	Severe	Severe	Severe	Severe.
Alligator clay, depressional	Severe	Very severe	Severe	Severe	Severe	Severe	Severe.
Alligator silty clay loam	Moderate	Very severe	Moderate	Moderate	Moderate	Moderate	Moderate.
Alligator association		Very severe					
Borrow area							
Boswell-Tippah complex, 17 to 40 percent slopes.	Moderate	Very severe	Severe	Severe	Severe	Severe	Moderate.
Calloway silt loam, 0 to 2 percent slopes.	Moderate	Very severe	Moderate	Moderate	Severe	Moderate	Moderate.
Calloway silt loam, 2 to 5 percent slopes.	Moderate	Very severe	Moderate	Moderate	Severe	Moderate	Moderate.
Cascilla silt loam	Moderate or severe.	Moderate or severe.	Moderate	Moderate	Moderate	Moderate	Moderate or severe.
Collins silt loam	Moderate or severe.	Moderate to very severe.	Moderate	Moderate	Moderate	Moderate	Moderate or severe.
Collins silt loam, local alluvium	Moderate or severe.	Moderate to very severe.	Moderate	Moderate	Moderate	Moderate	Moderate or severe.
Cuthbert-Ruston association, hilly.							
Cuthbert-Ruston complex, 12 to 17 percent slopes.							
Cuthbert-Ruston complex, 12 to 17 percent slopes, eroded.							
Dubbs silty clay loam	Moderate	Moderate or severe.	Moderate	Moderate	Moderate	Moderate	Moderate.
Dulac silt loam, 2 to 5 percent slopes, eroded.	Moderate	Very severe	Moderate	Moderate	Moderate	Moderate	Moderate.
Dulac silt loam, 5 to 8 percent slopes, eroded.	Moderate	Very severe	Moderate	Moderate	Moderate	Moderate	Moderate.
Dulac silt loam, 5 to 8 percent slopes, severely eroded.	Moderate	Very severe	Severe	Severe	Severe	Severe	Moderate.
Falaya-Collins association	Moderate to very severe.	Very severe	Severe	Severe	Severe	Severe	Severe.
Falaya silt loam	Moderate to very severe.	Very severe	Severe	Severe	Severe	Severe	Severe.
Falaya silt loam, local alluvium	Moderate to very severe.	Very severe	Severe	Severe	Severe	Severe	Severe.
Forestdale silty clay loam	Severe	Very severe	Severe	Severe	Severe	Severe	Severe.
Gravel pits							
Grenada silt loam, 0 to 2 percent slopes.	Slight	Very severe	Slight	Slight	Moderate	Slight	Slight.
Grenada silt loam, 2 to 5 percent slopes, eroded.	Slight	Very severe	Slight	Slight	Moderate	Slight	Slight.
Grenada silt loam, 2 to 5 percent slopes, severely eroded.	Moderate	Very severe	Moderate	Moderate	Severe	Moderate	Slight.
Grenada silt loam, 5 to 8 percent slopes, eroded.	Slight	Very severe	Moderate	Slight	Moderate	Moderate	Moderate.
Grenada silt loam, 5 to 8 percent slopes, severely eroded.	Moderate	Very severe	Severe	Moderate	Severe	Severe	Moderate.
Gullied land, clayey							
Gullied land, sandy							
Gullied land, silty							

TABLE 6.—*Limitations to use of soils as recreational areas*—Continued

Soil	Houses using public or community sewage systems	Filter fields for sewage-disposal systems	Campsites	Picnic areas	Intensive play areas	Golf fairways	Trafficways
Henry silt loam	Severe	Very severe	Severe	Severe	Severe	Severe	Severe.
Loring silt loam, 0 to 2 percent slopes.	Slight	Moderate	Slight	Slight	Slight	Slight	Slight.
Loring silt loam, 2 to 5 percent slopes, eroded.	Slight	Moderate	Slight	Slight	Slight	Slight	Slight.
Loring silt loam, 2 to 5 percent slopes, severely eroded.	Slight	Moderate	Moderate	Moderate	Moderate	Moderate	Slight.
Loring silt loam, 5 to 8 percent slopes, eroded.	Moderate	Severe	Severe	Moderate	Severe	Severe	Moderate.
Loring silt loam, 5 to 8 percent slopes, severely eroded.	Severe	Severe	Severe	Severe	Severe	Severe	Moderate.
Loring silt loam, 8 to 12 percent slopes, eroded.	Severe	Severe	Severe	Severe	Severe	Severe	Moderate.
Loring silt loam, 8 to 12 percent slopes, severely eroded.	Severe	Severe	Severe	Severe	Severe	Severe	Moderate.
Memphis silt loam, 0 to 2 percent slopes.	Slight	Slight	Slight	Slight	Slight	Slight	Slight.
Memphis silt loam, 2 to 5 percent slopes, eroded.	Slight	Slight	Slight	Slight	Slight	Slight	Slight.
Memphis silt loam, 5 to 8 percent slopes, severely eroded.	Slight	Slight	Moderate	Moderate	Severe	Severe	Slight.
Memphis silt loam, 8 to 12 percent slopes, severely eroded.	Slight	Slight	Moderate	Slight	Moderate	Moderate	Slight.
Memphis silt loam, 12 to 17 percent slopes.	Moderate	Moderate	Severe	Moderate	Severe	Severe	Moderate.
Memphis silt loam, 12 to 17 percent slopes, eroded.	Moderate	Moderate	Severe	Moderate	Severe	Severe	Moderate.
Memphis silt loam, 17 to 40 percent slopes.	Severe	Very severe	Severe	Severe	Very severe.	Severe	Severe.
Memphis silt loam, 17 to 50 percent slopes, severely eroded.	Severe	Very severe	Severe	Severe	Very severe.	Severe	Severe.
Memphis-Guin complex, 17 to 50 percent slopes.	Severe	Very severe	Severe	Severe	Very severe.	Severe	Severe.
Mixed alluvial land							
Providence-Loring association, hilly.							
Providence-Loring complex, 8 to 12 percent slopes, eroded.	Moderate	Severe	Moderate	Moderate	Severe	Moderate	Moderate.
Providence-Loring complex, 12 to 17 percent slopes.	Moderate	Severe	Severe	Moderate	Severe	Severe	Moderate.
Providence-Loring complex, 12 to 17 percent slopes, eroded.	Moderate	Severe	Severe	Moderate	Severe	Severe	Moderate.
Providence silt loam, 5 to 8 percent slopes, eroded.	Slight	Severe	Moderate	Slight	Moderate	Moderate	Moderate.
Providence silt loam, 5 to 8 percent slopes, severely eroded.	Moderate	Severe	Severe	Moderate	Severe	Severe	Moderate.
Ruston-Cuthbert association, hilly.							
Ruston-Providence association, hilly.							
Ruston-Providence complex, 12 to 17 percent slopes.							
Ruston-Providence complex, 12 to 17 percent slopes, eroded.							
Sandy alluvial land							
Sand pits							
Tippah-Boswell complex, 8 to 12 percent slopes.	Moderate	Very severe	Severe	Severe	Severe	Severe	Moderate.
Tippah-Boswell complex, 8 to 12 percent slopes, eroded.	Moderate	Very severe	Severe	Severe	Severe	Severe	Moderate.
Tippah-Boswell complex, 12 to 17 percent slopes.	Moderate	Very severe	Severe	Severe	Severe	Severe	Moderate.
Tippah-Boswell complex, 12 to 17 percent slopes, eroded.	Moderate	Very severe	Severe	Severe	Severe	Severe	Moderate.
Vicksburg silt loam	Moderate to severe.	Moderate to severe.	Moderate	Moderate	Moderate	Moderate	Moderate.
Vicksburg silt loam, local alluvium.	Moderate or severe.	Moderate or severe.	Moderate	Moderate	Moderate	Moderate	Moderate.
Waverly-Falaya association		Very severe					
Waverly silt loam	Very severe	Very severe	Severe	Severe	Severe	Severe	Severe.

hazard of flooding, slope, and depth to hard rock. Soils capable of supporting the buildings are needed, and flooding should not be a hazard. The water table should be below a depth of 30 inches for most of the year and should never rise above 15 inches.

Filter fields for sewage-disposal systems.—For the ratings in this column of table 6, only the limitations of the soils as disposal fields for septic tanks were considered. Important properties are the rate of percolation, depth to the water table, hazard of flooding, slope, and depth to hard rock. The soils should be permeable and have good drainage. Flooding should not be a hazard, and the water table should be below a depth of 60 inches for most of the year.

Campsite.—A campsite is an area suitable for pitching tents and for living outdoors for a period of 1 week or more. The major properties used to rate the limitations of the soils as campsites are the slope, trafficability, and susceptibility to erosion. Little preparation of the soils at the site should be necessary. The soils should have an attractive landscape and be capable of producing trees and grass. They should not be naturally wet and should be able to support people walking.

Picnic areas.—These are areas suitable for pleasure outings at which a meal is eaten out of doors. About the only requirement besides an attractive landscape and soils that can support people walking are that the soils are suitable for installing picnic tables and a fireplace. Slope and the erodibility of the soil are important.

Intensive play areas.—These are areas developed for playgrounds and for baseball, tennis, badminton, and other organized games. These areas are subject to much foot traffic and generally require a soil that is nearly level, has good drainage, and has a texture and consistence that provides a firm surface. The soil should not have coarse fragments or rock outcrops. Generally, less than 2 acres are required for these areas.

Golf fairways.—The soils are rated according to their limitations to use as fairways. Their suitability for the rough or for hazards is not considered, because many kinds of soils are suitable for these parts of a golf course. Since most greens are manmade, the soils are not rated for that purpose. The suitability of the soil for fairways depends mainly on how well the soil supports people and golf carts, especially soon after a rain. Also considered are the amount of rocks or large outcrops, suitability for grass, and the slope.

Trafficways.—Trafficways are areas that can be developed into roads and trails at a low cost. The cuts and fills should be small, and the subgrade should require little preparation. The major considerations in rating limitations of soils used for trafficways are slope, depth to water table, hazard of flooding, erodibility, and traffic-supporting capacity.

Natural parks.—Natural parks are areas that are kept in their natural state, except that nature trails, hiking trails, bridle paths, and picnic areas may be developed. Because the soils suitable for natural parks cover an extremely wide range, the limitations to individual soils are not rated. Needed in the parks are soils suitable for campsites, picnic areas, and the like, but it is impractical to rate parks on the basis of suitability for these purposes. For example, trails and roads enhance the value of a park if they are routed by some of the roughest sites.

Use of Soils for Wildlife and Fish [4]

The type of vegetation and the use of the land determine the kinds and number of wildlife in any area. Some kinds of wildlife are adapted to woodland, some to marshland, and some to farmland, or to a combination of these. In an area the kinds of soils have much to do with the vegetation that grows and the vegetation, in turn, affects the wildlife in the area. Even the quality and quantity of water and its productivity of fish depend on the soil and the plant life associated with it.

At the time this area was settled, it was covered with timber and was the habitat of many deer, turkey, squirrel, and other wildlife. As the land was cleared for farming, these animals decreased in number because part of the habitat was destroyed. They were replaced by rabbits, bobwhite quail, doves, and other wildlife that were better adapted to open and semiopen areas. These animals flourished because the farming practices used created an environment suitable for them.

Recent trends in land use have continued to change the kinds and numbers of wildlife in this county. Reforestation and good management of timber have brought back many woodland animals. Modern farming methods, however, have destroyed much of the vegetation needed to support farm game, and their numbers have declined. The use of the land will continue to affect the kinds and numbers of wildlife in the county.

Requirements of game and fish

Bobwhite quail.—These birds need open and partly open areas in which foods are available near vegetation that provides protection from predators and adverse weather. Such conditions exist primarily in areas of row-crop farming. Choice foods for quail are acorns, beechnuts, blackberries, browntop and Texas millets, black cherries, corn, cowpeas, flowering dogwood, lespedeza (bicolor, Kobe, Korean, and common), mulberries, pine seed, partridgepeas, ragweed, soybeans, sweetgum seed, and tickclovers (beggarticks). Quail also eat insects in the warm seasons.

Deer.—Deer require woodland areas of 500 acres or more and a good supply of water. They eat a variety of plant foods, including many native forage plants. Some of their choice foods are acorns, clover, corn, cowpeas, greenbriers, honeysuckle, oats, fescue, and wheat.

Doves.—Doves need a daily supply of water and, for feeding, open fields without thick ground cover. Some of their choice foods are browntop millet, corn, croton, grain sorghum, panicgrass (several species), pine seed, pokeberry, ragweed, sweetgum seed, and wheat.

Ducks.—Ducks feed in areas of permanent water or areas that are flooded in winter. Some of their choice foods are acorns, beechnuts, corn, browntop and Japanese millets, and smartweeds.

Rabbits.—Among the plants that provide good cover for rabbits are blackberry briers, multiflora rose, sericea

[4] Prepared by EDWARD G. SULLIVAN, biologist, Soil Conservation Service.

lespedeza, and low-growing brush, shrubs, or annual weeds. Grass, clovers, waste grain, and bark are the main foods.

Squirrels.—Squirrels require woodland covering a few acres or more. Hardwoods in the stand are essential, for they supply food. Choice foods are acorns, beechnuts, black cherries, corn, hickory nuts, mulberries, pecans, and the seeds of blackgum, maple, dogwood, and pine.

Nongame birds.—Many kinds of nongame birds live in Grenada County. Their habitat and their foods vary. Some of these birds eat only insects, a few eat insects and fruits, and others eat insects and acorns, nuts, and fruits.

Fish.—The principal game fish in ponds and streams are bass, bluegills and other sunfish, and channel catfish. Bluegills and most of the sunfish eat aquatic worms, insects, and insect larvae. Bass and catfish eat small fish, frogs, crayfish, and other aquatic animals. In ponds the amount of food for fish and the poundage of usable fish produced are related to the fertility of the water and of the watershed and bottom of the pond. Most ponds in the county need fertilizer and lime for producing a good crop of fish.

Management of wildlife habitats by soil associations

In this section the suitability and management of soils and plants for fish and wildlife in Grenada County are discussed by soil associations, which are shown on the General Soil Map at the back of this report. Two or more associations that have similar habitat and similar management requirements are discussed together.

ALLIGATOR-FORESTDALE SOIL ASSOCIATION

This association is made up of poorly drained, heavy, clayey soils on the Mississippi River flood plain. This area is in the western part of the county and is commonly called the Delta. It covers about 3 percent of the county. About half of the acreage is in mixed hardwoods, and the rest is in cotton, corn, soybeans, hay, and pasture. A few shallow lakes, sloughs, and marshes occur throughout the association.

The soils in this association are well suited to hardwoods, and the forests provide excellent habitat for deer and squirrel. These forests are also good for ducks in areas that are naturally or artificially flooded during winter. Raccoons and other fur bearers also inhabit this association. Swamp rabbits are abundant, both in wooded areas and around the edges of fields and pastures. Also abundant are cottontail rabbits.

Many kinds of songbirds inhabit this association, but it is not a good habitat for bobwhite quail, though some are present. The Delta is a good place for doves because waste corn, grains, native grass seed, and other choice foods are plentiful.

Plants commonly planted to supply food for doves, ducks, rabbits, and deer are well adapted to the soils in this association if adequate drainage is provided. Many areas for feeding ducks can also be developed, for the soils hold water well if a levee is built for this purpose.

Very few farm ponds suitable for fish are in the association, and those that are constructed must be dug. Unless levees are relatively high, overflow water that carries wild fish into ponds is a hazard. Ponds suitable for fish, however, can be constructed.

WAVERLY-FALAYA-COLLINS, FALAYA-COLLINS-WAVERLY, AND FALAYA-CALLOWAY SOIL ASSOCIATIONS

These associations consist of soils on the alluvial plain of the Yalobusha River and other smaller streams. The associations cover 30 percent of the county. A large part of the acreage is intensively farmed to cotton, corn, soybeans, small grain, pasture, and hay. The Falaya-Calloway association is flooded by the backwater of Grenada Reservoir and is covered by water part of the year.

The soils of these associations are generally best suited to quail, doves, rabbits, and other game that is found on and near farmland. The wooded areas are mostly in hardwoods and provide excellent food and cover for deer and squirrels, but intensive farming in these areas limits the number of game animals.

Plants that supply food and cover for bobwhite quail are well suited to the soils of this association. Among the abundant native foods are annual lespedeza, partridgepeas, and beggarticks. Millet, cowpeas, lespedeza, and other foods are commonly planted for quail. Cover plants are abundant where they are allowed to grow. A large number of quail can be supported on these associations if the soils are managed so as to encourage the growth of plants for food and cover.

Rabbits are also abundant where sufficient cover, such as blackberry briers, low brush, and annual weeds, is allowed to grow. Native and planted grasses provide their food.

Doves eat corn and grain sorghum in fields and the native grasses around them. Browntop and Texas millets are excellent food for doves and, if planted, grow well on the soils of these associations.

The woodland areas provide good habitats for deer and squirrels and a few turkeys. The hardwood trees, brush, and annual plants in these areas furnish their food. If management is good, these areas will continue to provide habitats for forest game.

Feeding areas for waterfowl are scattered throughout these associations, especially in the Falaya-Calloway association near the Grenada Reservoir. The woodland, which is flooded naturally in winter, provides good food for ducks. Other areas suitable for ducks can also be developed. These areas may be in woodland that is flooded or in and around fields that are enclosed by low levees and flooded during winter. Before the fields are flooded, browntop millet, Japanese millet, or corn should be planted. If the level of the water is lowered at the proper season, Japanese millet will grow at the shallow edges of lakes, of beaver ponds, and of reservoirs that retard floodwaters. Advice on managing soils for ducks can be obtained from representatives of the local Soil Conservation Service.

Because these associations are made up of broad flats and depressions, farm ponds are few. Ponds can be dug, and a few depressions may be suitable for ponds of the levee type. Flooding of the bottom lands near streams is a hazard because the floodwaters bring in wild fish.

GRENADA-CALLOWAY SOIL ASSOCIATION

The Grenada-Calloway association is made up of nearly level to moderately sloping soils on ridges. These soils

occur in narrow bands between the bottom lands and the steeper areas. They make up about 8 percent of the county.

This association can support about the same kinds and numbers of wildlife as the Waverly-Falaya-Collins association. The habitats for quail are excellent, though specific practices are needed in intensively farmed areas if the birds are to be abundant.

A large part of this association is in pasture. Pasture is generally a poor habitat for game animals unless it is improved by specific measures. The easiest game animals to provide for are rabbits because they need only a thick patch of cover in or adjacent to the pasture. This cover can be supplied by the many plants that are suited to the soils. The grasses in the pasture provide most of the food for rabbits.

Corn, grain sorghum, and soybeans supply most of the food for doves in areas where row crops are grown. Browntop and Texas millets grow well on the soils of this association and can be planted to supply food for doves where it is needed.

Only a few areas in this association are wooded, but they are suitable for game. These wooded areas tie in with the forest on adjacent uplands and enlarge the wooded areas suitable for game.

Most of the soils in this association hold water well and are suitable as sites for farm ponds. Under good management, a large quantity of fish can be produced in these ponds.

MEMPHIS AND MEMPHIS-GUIN SOIL ASSOCIATIONS

The Memphis association and the Memphis-Guin association consist of very steep soils in the western part of the county, an area locally called the bluff hills. These associations border the alluvial plain of the Mississippi River and occupy about 9 percent of the county. They are mainly in hardwoods, but some areas on the narrow bottoms and ridgetops have been cleared.

These associations are excellent for forest game because many kinds of hardwood trees and shrubs provide good habitat for deer, squirrels, and turkeys. Good management of the forests is needed to keep them productive of wildlife.

Quail and rabbits occur in large numbers only in or near areas that are cleared and farmed. Many plants that furnish food for quail and rabbits grow around these open areas, but farm game is less important than the forest game because the wooded areas are large. Also, the hunting of farm game is impaired by the steep slopes and thick stands of trees and brush.

Few, if any, areas in these associations can be developed as habitat for ducks. In some areas lakes and fish ponds can be built that produce a large quantity of fish under good management.

MEMPHIS-LORING, RUSTON-PROVIDENCE, RUSTON-CUTHBERT-PROVIDENCE, TIPPAH-BOSWELL-DULAC, AND PROVIDENCE-LORING-RUSTON SOIL ASSOCIATIONS

These associations consist of gently sloping to steep soils on narrow ridgetops and on bottom lands along small streams. The associations are mostly on hilly uplands and make up 48 percent of the county. The steeper areas are wooded, and the bottom lands and gently sloping ridgetops are in small farms of the general type.

The soils of these associations support a variety of wildlife. Almost all animals and birds native to the northern part of Mississippi inhabit these associations. The areas have enough open farmland and idle land to support farm game and enough woodland to support forest game.

Some of the best habitats for quail in the county are in these associations. Annual lespedeza, one of the choice foods for quail, is abundant around fields, pastures, and idle areas. Several other native foods suitable for quail grow equally well, and all other plants suggested for quail are adapted to most of the soils in these associations.

The small farms in the area provide excellent habitat for rabbits. The plants that provide food and cover for rabbits are well adapted to the soils. The doves are limited to the open fields where waste grain, woolly croton, and the seeds of native grasses furnish most of their food, but any of the varieties of millet could be seeded to furnish additional food.

The woodland in these associations provides fair habitat for forest game, but trees have been cut or the pines are young and large numbers of forest game cannot be supported at the present time. Under good management, the woodland can support more game animals. Quail are attracted to the woodland in these associations by the acorns of oak trees.

Within these associations, areas that can be developed for ducks are scarce. A few of the larger ponds, the flood-retarding reservoirs, and the beaver ponds can be made suitable for ducks by controlling the level of the water and by planting Japanese millet along the edges.

Many farm ponds have been built in this area, and sites where others can be built are numerous. Most of the ponds are not managed for the production of fish, but if they are, good yields can be obtained.

Formation, Classification, and Morphology of Soils

This section consists of three main parts. Discussed in the first part, in terms of their effects on the formation of soils in Grenada County, are the factors of soil formation and the processes of horizon differentiation. In the second part, the two systems currently used in classifying soils are described and the soils are placed in these systems. In the third part, the morphology of the soils is discussed and a detailed description of each soil series is given.

Formation of Soils

The five major factors of soil formation are climate, living organisms (especially vegetation), parent material, topography, and time. Soil is produced when these five factors interact. The kind of soil that forms in one area differs from the kind of soil in another area if there has been a difference between the two areas in climate, vegetation, or any other factor.

Climate

Climate as a genetic factor affects the physical, chemical, and biological relationships in the soils, primarily through precipitation and temperature. The climate of Grenada County is warm, moist, and presumably similar to the climate that existed when the soils formed.

Although runoff and relief modify the effect of climate in local areas, climate is generally uniform throughout the county.

The warm, moist climate in this county has promoted rapid development of soils. Warm temperatures have influenced the kinds and growth of organisms and have affected the rate of physical and chemical changes in the soils. Water from the relatively high precipitation has leached bases and other soluble materials and has carried colloidal particles and other less soluble material downward through the profile. In this county the mature soils have been highly leached, and leaching is progressing in the young soils.

Living organisms

Micro-organisms, plants, earthworms, and all other organisms that live on and in the soil are important in formation of soils. Bacteria, fungi, and other micro-organisms aid in weathering rock and in decomposing organic matter. Larger plants alter the soil microclimate, supply organic matter, and transfer minerals from the subsoil to the surface soil.

The kinds and numbers of plants and animals that live in and on the soil are determined mainly by climate and partly by parent material.

In Grenada County the fungi and micro-organisms are mostly in the top few inches of soil, but not much is known about them. The activity of earthworms and other small invertebrates is greatest in the surface layer, where they continually mix the soil. Mixing of soil material by rodents does not appear to have been of much consequence in this county.

Except in the bottom lands, the native vegetation in the county was chiefly oak, hickory, and pine. On the better drained bottom lands, the trees were chiefly yellow-poplar, sweetgum, ash, oak, and other lowland hardwoods. Cypress, birch, blackgum, beech, and oaks that tolerate water grew mainly on the poorly drained bottom lands.

Parent material

Parent material is the unconsolidated mass from which soil forms. It determines the chemical and mineralogical composition of the soil. In Grenada County the parent material of the soils is alluvium from the Mississippi River, loess, and sediments of the Coastal Plain.

The soils of the Delta, in the extreme western part of the county, formed in alluvium of the Mississippi River. Relief in this area is nearly level. The soils of the central part of the county and of the hills bordering the Mississippi River Delta formed in loess. The mantle of loess is 30 feet thick or more at the western edge and thins progressively towards the east. Unweathered loess is uniform in physical and chemical composition. It is fine textured and consists of particles that are irregular in shape. Most soil scientists believe that the loess was first deposited on the flood plains and later redeposited by wind on the older formations of the Coastal Plain. Relief in this area of loessal soils ranges from nearly level to very steep. The soils of the eastern part of the county formed in sediments of the Coastal Plain. These sediments were deposited by the sea during the Pliocene epoch. Relief in this area is gently sloping to very steep.

The soils along streams in the county formed in alluvium. This material, mainly silt, has been transported and redeposited by the streams. The soils on the old high terraces have been in place long enough to have a well-developed profile. Those on the first bottoms have weakly developed profiles and receive fresh deposits of soil material when the streams flood. Also, narrow strips of local alluvium that have been modified only slightly, if any, by the soil-forming processes occur along drainageways throughout the county.

Topography

Topography, including direction of slope, affects soil formation through its influence on drainage, erosion, vegetation, and soil temperature. The topography of this county is nearly level to very steep, and the slopes range from 0 to 50 percent.

This great range in slope affects the different characteristics of the soils. For example, both Memphis and Henry soils formed in thick beds of loess, but the sloping Memphis soils are on ridges and the Henry soils are in nearly level areas. The Memphis soils are well drained and have a brown unmottled subsoil that has moderate structure. In contrast, the Henry soils are poorly drained, have a fluctuating water table, and have a gray subsoil in which there is a strongly developed fragipan.

Time

Time, generally a long time, is required for the formation of soils that have distinct horizons. Differences in the length of time that the parent material has been in place are commonly reflected in the degree of development of the soil profile.

The soils in Grenada County range from young to old. The young soils have developed very little, and the older soils have well-defined horizons. For example, the Collins soils are young and have a weakly developed profile. Except for the darkening of their surface layer, the Collins soils have retained most of the characteristics of their silt loam parent material. The Calloway soils are older than the Collins soils and have well-developed horizons. Although they formed in material similar to that of the Collins soils, Calloway soils have developed a bisequel profile that bears little resemblance to the original parent material.

Processes of soil horizon differentiation

Several processes were involved in the formation of horizons in the soils of this county. These processes are (1) the accumulation of organic matter, (2) the leaching of calcium carbonates and bases, (3) the liberation, reduction, and transfer of iron, and (4) the formation and translocation of silicate clay minerals. In most soils, more than one of these processes have been active in the development of horizons.

The accumulation of organic matter in the upper part of the profile has been important in the formation of an A1 horizon. The soils of this county range from low to very low in content of organic matter.

Carbonates and bases have been leached from nearly all of the soils of this county. This leaching has contributed to the development of horizons. Soil scientists generally agree that leaching of bases from the upper

horizons of a soil generally precedes the translocation of silicate clay minerals. Most of the soils of this county are moderately to strongly leached.

The reduction and transfer of iron, called gleying, is evident in the poorly drained and very poorly drained soils of the county. The reduction and loss of iron is indicated by the gray color in the subsoil horizons. Some horizons contain reddish-brown mottles and concretions, which indicate a segregation of iron.

In some of the soils of this county, the translocation of clay minerals has contributed to the development of horizons. The eluviated A2 horizon in these soils has platy structure and is lower in content of clay, and generally is lighter in color than the B horizon. The B horizon commonly has accumulated clay, or clay films, in pores and on the surfaces of peds. These soils were probably leached of carbonates and soluble salts to a considerable extent before translocation of silicate clays took place. The leaching of bases and translocation of silicate clays are among the more important processes in the formation of different horizons in the soils of this county. The Memphis soils are an example of soils that have translocated silicate clays accumulated in the B horizon in the form of clay films.

Classification of the Soils

Soils are classified so that we may more easily remember their significant characteristics. Classification enables us to assemble knowledge about the soils, to see their relationships to one another and to the whole environment, and to develop principles that help us to understand their behavior and their response to manipulation. First, through classification and then through use of soil maps, we can apply our knowledge of soils to specific fields and other tracts of land.

Thus, in classification, soils are placed in narrow categories that are used in detailed soil surveys so that knowledge about the soils can be organized and applied in managing farms, fields, and woodland; in developing rural areas; in engineering work; and in many other ways. They are placed in broad classes to facilitate study and comparison in large areas, such as countries and continents.

Two systems of classifying soils are now in general use in the United States. One of these is the 1938 system (*2*), with later revisions (*8*). The other, a completely new system was placed in general use by the Soil Conservation Service at the beginning of 1965. The reader who is interested in the current system should search the latest literature (*7, 11*). In this soil survey classes in the current system, and great soil groups of the older system, are given (see table 7). Modifications in the current system are made as knowledge of soils increases. The classes in the current system are briefly defined in the following paragraphs.

ORDER: Ten soil orders are recognized in the current system. They are Entisols, Vertisols, Inceptisols, Aridisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, and Histosols. The properties used to differentiate the soil orders are those that tend to give broad climatic groupings of soils. Two exceptions are the Entisols and Histosols, which occur in many different climates.

Table 7 shows the five soil orders in Grenada County—Vertisols, Entisols, Inceptisols, Ultisols, and Alfisols. Vertisols are soils in which natural churning or inversion of soil material takes place, mainly through the swelling and shrinking of clay. Entisols are recent soils that do not have genetic horizons or have only the beginnings of such horizons. Inceptisols most often occur on young, but not recent, land surfaces; hence, their name is derived from the Latin *inceptum*, for beginning. Ultisols have a clay-enriched B horizon that has less than 35 percent base saturation, which decreases with depth. Alfisols are soils containing clay-enriched B horizons that have high base saturation.

SUBORDER: Each order is subdivided into suborders, primarily on the basis of those soil characteristics that seem to produce classes having the greatest genetic similarity. The suborders narrow the broad climatic range permitted in the orders. The soil properties used to separate suborders mainly reflect either the presence or absence of waterlogging or soil differences resulting from the climate or vegetation.

GREAT GROUPS: Soil suborders are separated into great groups on the basis of uniformity in the kinds and sequence of major soil horizons and features. The horizons used to make separation are those in which clay, iron, or humus have accumulated. The features used are the self-mulching properties of clays, soil temperature, major differences in chemical composition (mainly calcium, magnesium, sodium, and potassium), and the like. The great group is not shown in table 7 for the current classification system. The name of the great group is the last part of the name of the subgroup.

SUBGROUPS: Great groups are subdivided into subgroups, one representing the central (typic) segment of the group and others, called intergrades, that have properties of one great group and also one or more properties of another great group, suborder, or order. Subgroups may also be made in those instances where soil properties intergrade outside of the range of any other great group, suborder, or order. The names of subgroups are derived by placing one or more adjectives before the name of the great group. An example is Typic Normudalfs (a typical Normudalf).

FAMILIES: Families are separated within a subgroup primarily on the basis of properties important to the growth of plants or to the behavior of soils where used for engineering. Among the properties considered are texture, mineralogy, reaction, soil temperature, permeability, thickness of horizons, and consistence. An example of a family is the fine silty, mixed, thermic family of Typic Normudalfs.

SERIES: The series is a group of soils having major horizons that, except for texture of surface layer, are similar in important characteristics and in arrangement in the profile. The soil series generally is given the name of the geographic location near the place where a soil of that series was first observed and mapped. An example is the Grenada series.

Morphology of Soils

In this subsection the outstanding morphologic characteristics of each soil series in Grenada County are given. Each series represented in the county is classified

TABLE 7.—*Soil series classified according to current and old systems of classification*[1]

Series	Current classification			Old classification
	Family	Subgroup	Order	Great soil group
Alligator	Montmorillonitic, thermic	Entic Grumaquerts	Vertisols	Low-Humic Gley soils.
Boswell	Clayey, mixed, thermic	Typic Normudults	Ultisols	Red-Yellow Podzolic soils.
Calloway	Fine silty, mixed, thermic	Aqueptic Fragiudalfs	Alfisols	Planosols (with a fragipan).
Cascilla	Fine silty, mixed, thermic	Cumulic Dystrochrepts	Inceptisols	Gray-Brown Podzolic soils.
Collins	Coarse silty, mixed, acid, thermic	Aquic Cumulic Haplorthents.	Entisols	Alluvial soils.
Cuthbert	Clayey, kaolinitic, thermic, thin	Entic Normudults	Ultisols	Red-Yellow Podzolic soils.
Dubbs	Fine silty, mixed, thermic	Mollic Normudalfs	Alfisols	Gray-Brown Podzolic soils.
Dulac	Fine silty over fine, mixed, thermic.	Typic Fragiudults	Ultisols	Red-Yellow Podzolic soils (with a fragipan).
Falaya	Coarse silty, mixed, acid, thermic	Aeric Cumulic Normaquepts.	Inceptisols	Low-Humic Gley soils (with some characteristics of Alluvial soils).
Forestdale	Fine, mixed, thermic	Typic Ochraqualfs	Alfisols	Low-Humic Gley soils.
Grenada	Fine silty, mixed, thermic	Ochreptic Fragiudalfs	Alfisols	Gray-Brown Podzolic soils (with prominent fragipan).
Guin	Sandy skeletal, siliceous, thermic	Typic Dystrochrepts	Inceptisols	Regosols.
Henry	Fine silty, mixed, thermic	Typic Fragiaqualfs	Alfisols	Planosols.
Loring	Fine silty, mixed, thermic	Typic Fragiudalfs	Alfisols	Gray-Brown Podzolic soils (with fragipan).
Memphis	Fine silty, mixed, thermic	Typic Normudalfs	Alfisols	Gray-Brown Podzolic soils.
Providence	Fine silty, mixed, thermic	Typic Fragiudalfs	Alfisols	Gray-Brown Podzolic soils (with a fragipan).
Ruston	Fine loamy, siliceous, thermic	Typic Normudults	Ultisols	Red-Yellow Podzolic soils.
Tippah	Fine silty over fine, mixed, thermic.	Typic Normudults	Ultisols	Red-Yellow Podzolic soils.
Vicksburg	Coarse silty, mixed, acid, thermic	Cumulic Haplorthents	Entisols	Alluvial soils.
Waverly	Coarse silty, mixed, acid, thermic	Cumulic Normaquepts	Inceptisols	Low-Humic Gley soils.

[1] Placement of some soil series in the present system of classification, particularly in families, may change as more precise information becomes available.

in a suborder and a family, and a general description of the soils in the series is given. Then a soil profile typical of the series is described in detail, and the range of important characteristics is given. Gullied land, Sandy alluvial land, and other land types are not members of soil series; therefore, they are not discussed in this section.

Features that result from the interaction of the factors of soil formation are recorded in the soil profile, which is a succession of layers or horizons from the surface downward. The horizons vary in thickness and differ in one or more properties, such as color, texture, structure, consistence, porosity, or reaction.

Most soil profiles contain three major horizons, called A, B, and C. In some young soils a B horizon generally has not developed. The A horizon is the surface layer; it includes the horizon of maximum content of organic matter, called the A1, and the horizon of maximum leaching of dissolved or suspended materials, called the A2. The B horizon lies immediately below the A horizon and is called the subsoil. It is a horizon of maximum accumulation of dissolved or suspended minerals, such as iron or clay. The B horizon may have a blocky structure and is generally firmer than horizons immediately above and below it. It has been only slightly affected by the processes of soil formation, but it may be modified by weathering.

ALLIGATOR SERIES

The soils of the Alligator series are Entic Grumaquerts in a montmorillonitic, thermic family. These soils are on slopes of 0 to 2 percent. They are in the western part of the county on the Delta, where they are adjacent to the Dubbs and Forestdale soils. Compared with the Dubbs and Forestdale soils, Alligator soils are more clayey but do not have a B2t horizon. They are similar to the Forestdale soils in color. The chroma is less in the control section of the Alligator soils than it is in that of the Forestdale soils.

Profile of Alligator clay that has slopes of 2 percent; in a soybean field 0.25 mile south of county line and 300 feet east of Martin Creek (NW¼NW¼ of sec. 6, T. 22 N., R. 2 E.):

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) clay with few, fine, faint, gray (10YR 6/1) mottles; weak, fine and medium, granular structure; firm; few fine roots; strongly acid; abrupt, smooth boundary.

C1g—4 to 26 inches, gray (10YR 5/1) clay with many, medium, distinct, yellowish-brown (10YR 5/6) mottles and common, medium, dark-brown (10YR 4/3) mottles; massive; very firm when moist, plastic when wet; few fine roots in upper part; strongly acid; clear, smooth boundary.

C2g—26 to 48 inches +, gray (10YR 6/1) clay with many, medium and coarse, yellowish-brown (10YR 5/6) and brownish-yellow (10YR 6/6) mottles; massive; very firm when moist, plastic when wet; few, fine and medium, black concretions; very strongly acid.

The A horizon ranges from very dark grayish brown to dark gray in color and is clay or silty clay loam in texture. A chroma of 2 or less is dominant in the C horizon. Throughout the profile the hue is 10YR and the value is 5 or 6.

BOSWELL SERIES

The soils of the Boswell series are Typic Normudults in a clayey, mixed, thermic family. These soils of the uplands are on slopes of 8 to 40 percent. They formed from plastic clay. Boswell soils are adjacent to the Tippah, Dulac, and Cuthbert soils but have a more clayey upper Bt horizon than the Tippah and Dulac soils. Unlike the Dulac soils, the Boswell soils do not have a fragipan.

Profile of Boswell fine sandy loam that has slopes of 10 percent; in a wooded area 0.9 mile east and 150 feet south of Shaw's Store on State Route 8 (sec. 22, T. 22 N., R. 7 E.):

A1—0 to 3 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine and medium, granular structure; friable; many fine roots; many worm casts; strongly acid; abrupt, smooth boundary.

AB—3 to 4 inches, mixed-brown (10YR 5/3) and reddish-brown (5YR 5/4) fine sandy loam; weak, fine and medium, subangular blocky structure; friable; many fine roots; few fine iron crusts; many worm casts; evidence of mixing by worms and insects; very strongly acid; abrupt, smooth boundary.

B21t—4 to 13 inches, red (25YR 4/8) clay; strong, fine and medium, subangular blocky structure; firm when moist, very plastic when wet; few fine roots; clay films around peds; strongly acid; clear, smooth boundary.

B22t—13 to 18 inches, red (2.5YR 4/8) clay with common, fine, prominent, pale-brown mottles (10YR 6/3) and few, fine, prominent, light-gray (10YR 7/2) mottles; moderate to strong, fine and medium, subangular and angular blocky structure; firm when moist, very plastic when wet; few fine roots; many clay films; very strongly acid; clear, smooth boundary.

B23t—18 to 32 inches, mottled red (10R 4/6), light-gray (2.5Y 7/2), and brownish-yellow (10YR 6/6) clay; moderate, fine and medium, angular blocky structure; very firm when moist, very plastic when wet; few fine roots; clay films on many peds; few fine iron crusts; very strongly acid; gradual, smooth boundary.

B3t—32 to 41 inches, mottled red (2.5YR 5/8), light-gray (2.5Y 7/2), and brownish-yellow (10YR 6/6) clay; weak, medium, angular blocky structure; very firm when moist, very plastic when wet; few fine pieces of rocks; few clay films and pressure faces; gradual, smooth boundary.

C—41 to 60 inches +, yellowish-red (5YR 5/6) clay with common, medium, prominent, light-gray (2.5Y 7/2) and light yellowish-brown (2.5Y 6/4) mottles; massive; very firm when moist, very plastic when wet; very strongly acid.

The A horizon ranges from very dark grayish brown to brown. It is dominantly fine sandy loam but ranges to loam and sandy loam. The B horizon ranges from red to yellowish red.

CALLOWAY SERIES

The soils of the Calloway series are Aqueptic Fragiudalfs in a fine silty, mixed, thermic family. These bisequel soils formed in thick beds of loess in broad, low areas of the uplands. Slopes range from 0 to 5 percent. These soils are adjacent to the Grenada and Henry soils. Calloway soils have mottles with a chroma of 2 in the upper 10 inches of the B horizon, but the bisequel Grenada soils have mottles with a chroma of 2 at a depth of 10 to 20 inches. In contrast to Henry soils, Calloway soils are bisequel and do not have a thick A2 horizon.

Profile of Calloway silt loam that has slopes of ½ percent; 200 yards east of Riverdale Road and 0.3 mile north of the railroad crossing (sec. 19, T. 23 N., R. 5 E.):

Ap—0 to 8 inches, brown (10YR 5/3) silt loam with many, medium and coarse, faint, dark-brown (10YR 3/3) mottles; weak, medium, granular structure; friable; common fine roots; few worm casts; medium acid; abrupt, smooth boundary.

B&A—8 to 16 inches, light yellowish-brown (10YR 6/4) silt loam with common, medium, faint, brownish-yellow (10YR 6/8) mottles and common, medium and coarse, distinct, light-gray (2.5Y 7/2) mottles; weak to moderate, fine and medium, subangular blocky structure; friable; few fine roots; few worm casts; old root channels filled with material from Ap horizon; few, fine, brown concretions; strongly acid; clear, smooth boundary.

A'2xg—16 to 21 inches, light-gray (2.5Y 7/2) silt loam with common, fine and medium, distinct, brownish-yellow (10YR 6/6) mottles; weak, fine and medium, subangular blocky structure; friable when moist, hard when dry; compact; many, fine and medium, brown concretions; few fine roots; few fine voids and vesicles; strongly acid; clear, smooth boundary.

B'2tx—21 to 28 inches, mottled light-gray (10YR 7/1), yellowish-brown (10YR 5/6), and brownish-yellow (10YR 6/6) silty clay loam; moderate, medium, angular and subangular blocky structure; firm and compact when moist, hard when dry; brittle; few, fine, brown concretions; patchy clay films on peds; few fine roots in cracks; few fine voids; medium acid; clear, smooth boundary.

B'3tx—28 to 45 inches, yellowish-brown (10YR 5/4) silt loam with many, medium and coarse, distinct, light-gray (2.5Y 7/2) mottles and common, medium and coarse, faint, dark-brown (10YR 4/3) mottles; weak, medium and coarse, angular and subangular blocky structure; firm and slightly compact; brittle; few black concretions; slightly acid; gradual, wavy boundary.

C—45 to 60 inches +, brown (7.5YR 4/4) silt loam with common, medium and coarse, faint, pale-brown (10YR 6/3) mottles and common, medium and coarse, distinct, light-gray (2.5Y 7/2) mottles; structureless; friable; medium acid.

The A1 horizon ranges from dark grayish brown to grayish brown, and the Ap horizon ranges from grayish brown to brown. The B&A horizon ranges from light yellowish brown or yellowish brown to brownish yellow and has mottles with a chroma of 2 in the upper 10 inches. The A'2xg is white when dry. The B'2tx horizon is mottled light gray, yellowish brown, or brownish yellow. Depth to the fragipan ranges from 14 to 18 inches.

CASCILLA SERIES

The soils of the Cascilla series are Cumulic Dystrochrepts in a fine silty, mixed, thermic family. These soils are well drained and weakly developed. They formed in silty alluvium in the higher areas of the Yalobusha River alluvial plain. Slopes range from 0 to 2 percent. Cascilla soils are adjacent to the Vicksburg and Collins soils. They have a fine silty control section and a weakly developed B horizon, but the Vicksburg and Collins soils have a coarse silty control section and no B horizon.

Profile of Cascilla silt loam; in a cultivated field 500 feet east of U.S. Highway No. 51 and 200 feet south of Spring Lake (sec. 6, T. 22 N., R. 5 E.):

Ap—0 to 7 inches, brown (10YR 5/3) silt loam; weak, fine and medium, granular structure; very friable; few

fine roots; few worm casts; strongly acid; abrupt, smooth boundary.

B1—7 to 10 inches, brown (10YR 4/3) silt loam; weak, medium and coarse, subangular blocky structure; friable; few fine roots; common worm casts; few thin, patchy clay films on peds and in root and worm channels; very strongly acid; abrupt, smooth boundary.

B21—10 to 19 inches, dark-brown (10YR 3/3) silt loam; weak, medium and coarse, subangular blocky structure; friable; few fine roots; common worm casts; few, thin, patchy clay films on peds and in root and worm channels; very strongly acid; abrupt, smooth boundary.

B22—19 to 36 inches, dark yellowish-brown (10YR 4/4) heavy silt loam; weak, medium, subangular blocky structure; friable; few fine roots; few worm casts; few patchy clay films; very strongly acid; clear, smooth boundary.

B23—36 to 46 inches, yellowish-brown (10YR 5/4) heavy silt loam; weak, medium, subangular blocky structure; few fine roots; few worm casts; few patchy clay films; very strongly acid; clear, smooth boundary.

B3—46 to 59 inches, yellowish-brown (10YR 5/6) silt loam; weak, fine and medium, subangular blocky structure; friable; very strongly acid; clear, smooth boundary.

IIC—59 to 72 inches, yellowish-brown (10YR 5/4) fine sandy loam; single grain; very friable; very strongly acid.

The A horizon ranges from dark grayish brown to brown, and the B horizon ranges from dark brown to yellowish brown. Depth to the underlying sandy material is generally about 60 inches but ranges from 48 to 80 inches.

COLLINS SERIES

The soils of the Collins series are Aquic Cumulic Haplorthents in a coarse silty, mixed, acid, thermic family. These soils are on stream bottoms throughout the county. They are adjacent to the Vicksburg, Falaya, and Cascilla soils. Collins soils generally have mottles with a chroma of 2 or less at a depth of 20 to 30 inches, but Falaya soils have mottles with a chroma of 2 or more at a depth of 10 to 20 inches, and the Vicksburg soils are free of mottles with a chroma of 2 within a depth of 30 inches. The coarse silty Collins soils are not so well drained as the Cascilla soils and do not have a B horizon, whereas the Cascilla soils have a fine silty control section and a weakly developed B horizen.

Profile of Collins silt loam; in a pasture 0.25 mile east of Dubard on State Route 8 and 135 feet south of the highway (sec. 18, T. 22 N., R. 4 E.):

Ap1—0 to 1 inch, brown (10YR 4/3) silt loam with few, medium, faint, pale-brown (10YR 6/3) mottles; weak, fine and medium, granular structure; very friable; many fine roots; few worm casts; neutral; abrupt, smooth boundary.

Ap2 1 to 8 inches, brown (10YR 5/3) silt loam with few, medium, faint, pale-brown (10YR 6/3) mottles; weak, thick, platy structure; friable; common fine roots; few reddish stains around grass roots; medium acid; abrupt, smooth boundary.

C1—8 to 16 inches, yellowish-brown (10YR 5/4) silt loam; structureless; friable; few fine roots; few worm casts; strongly acid; clear, smooth boundary.

C2—16 to 22 inches, dark yellowish-brown (10YR 4/4) silt loam with common, medium, faint, pale-brown (10YR 6/3) mottles; structureless; friable; few, fine and medium, black concretions; few worm casts; strongly acid; clear, smooth boundary.

C3—22 to 30 inches, mottled light brownish-gray (10YR 6/2), brown (10YR 5/3), and yellowish-brown (10YR 5/4) silt loam; structureless; friable; few black concretions; common fine iron stains; few worm casts; strongly acid; gradual, smooth boundary.

C4g—30 to 42 inches, light brownish-gray (2.5Y 6/2) silt loam with common, medium, distinct, yellowish-brown (10YR 5/4) mottles and many, coarse, faint, gray (10YR 6/1) mottles; structureless; friable; few, fine black concretions; strongly acid; gradual, smooth boundary.

C5g—42 to 60 inches +, gray (10YR 5/1) and 10YR 6/1) silt loam; structureless; friable; strongly acid.

The A horizon ranges from brown to dark grayish brown. The C horizon ranges from yellowish brown to dark yellowish brown and is mottled with gray or light brownish gray at a depth of 20 to 30 inches. Texture is a silt loam throughout the profile.

CUTHBERT SERIES

The soils of the Cuthbert series are Entic Normudults in a clayey, kaolinitic, thermic, thin family. Cuthbert soils are in the eastern part of the county on hilly uplands. Slopes range from 12 to 50 percent. These soils are adjacent to Ruston and Providence soils. Cuthbert soils are more clayey and not so well drained as Ruston soils. They are more clayey than Providence soils and, unlike them, do not have a weak fragipan.

Profile of Cuthbert fine sandy loam that has slopes of 22 percent; in a wooded area 3 miles northwest of Kincaid on a gravel road and 200 yards north of road (SW¼SW¼ sec. 20, T. 22 N., R. 6 E.):

A1—0 to 2 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine, granular structure; very friable; many fine roots; few fine iron crusts; few worm casts; very strongly acid; abrupt, smooth boundary.

A2—2 to 4 inches, brown (10YR 5/3) fine sandy loam; weak, fine and medium, subangular blocky structure; friable; many fine roots; few fine pieces of rocks; few worm casts; very strongly acid; abrupt, smooth boundary.

B2t—4 to 10 inches, yellowish-red (5YR 5/6) clay; strong, fine and medium subangular and angular blocky structure; firm when moist, plastic when wet; few fine roots; few worm casts; few, fine, thin pieces of rocks; clay films on peds and in pores; very strongly acid; clear, smooth boundary.

B3t—10 to 15 inches, strong-brown (7.5YR 5/6) clay with common, medium, faint, brown (7.5YR 4/4) mottles; weak, medium, angular blocky and thick platy structure; firm; few roots; patchy clay films on some peds; light-gray (10YR 7/1) coats around roots; few worm casts; very strongly acid; gradual, wavy boundary.

C1—15 to 50 inches, thinly layered pale-brown (10YR 6/3) and yellowish-brown clay shale with lenses of sand and soft rock in between the layers; structureless; firm when moist; brittle; few fine roots in cracks between layers; very strongly acid; gradual, wavy boundary.

C2—50 to 65 inches, thin layers of light-gray (10YR 7/2) and grayish-brown (10YR 5/2) clay shale with yellow (10YR 7/6) and red (10R 4/6) lenses of sand between the layers; structureless; firm when moist; brittle; very strongly acid.

The A1 horizon ranges from dark grayish brown to grayish brown, and the A2 horizon ranges from brown to yellowish brown. The texture of the A1 and A2 horizons ranges from fine sandy loam to sandy loam. The B2t horizon ranges from strong brown to red and from clay loam to clay. The B3t horizon ranges from

yellowish brown to yellowish red mottled with various shades of brown, yellow, red, and gray. The texture ranges from fine sandy loam to clay. Thin, platy crusts of iron are commonly on the surface and in the lower horizons.

DUBBS SERIES

The soils of the Dubbs series are Mollic Normudalfs in a fine silty, mixed, thermic family. These soils are adjacent to the Forestdale and Alligator soils. Dubbs soils have a fine silty B2 horizon in which a chroma of 3 or higher is dominant, whereas the Forestdale soils have a fine Bt horizon in which a chroma of 2 or less is dominant. The Dubbs soils have a coarser control section than the Alligator soils, in which there is no Bt horizon and the matrix color is 2 or less.

Profile of Dubbs silty clay loam; in a field 200 feet south of State Route 8 and 0.1 mile east of western county line:

Ap—0 to 7 inches, very dark grayish-brown (10YR 3/2) silty clay loam; weak, fine and medium, granular structure; friable; few fine roots; few worm casts; neutral; clear, smooth boundary.

B2t—7 to 22 inches, brown (10YR 4/3) heavy silty clay loam with few, fine, faint, grayish-brown (10YR 5/2) mottles; moderate, fine and medium, subangular blocky structure; firm; few fine roots; patchy clay films on peds; very strongly acid; clear, smooth boundary.

B3t—22 to 33 inches, dark grayish-brown (10YR 4/2) silty clay loam with common, fine, distinct, yellowish-brown (10YR 5/6) mottles; moderate, fine and medium, subangular blocky structure; firm; few fine roots; patchy clay films on peds; few, fine, black concretions; common, medium, black and brown coatings on peds; very strongly acid; gradual, smooth boundary.

C—33 to 48 inches +, mottled grayish-brown (10YR 5/2), pale-brown (10YR 6/3, and yellowish-brown (10YR 5/6) light silty clay loam; structureless; friable; many, fine, black and brown concretions and coatings on peds; very strongly acid.

The A horizon ranges from 6 to 10 inches in thickness. The Ap horizon ranges from dark brown to very dark grayish brown. The B2t horizon ranges from brown to dark brown in color and from heavy silty clay loam to light silty clay loam in texture. The B3t horizon ranges from dark grayish brown to light brownish gray and from silty clay loam to silt loam.

DULAC SERIES

The soils of the Dulac series are Typic Fragiudults in a fine silty over fine, mixed, thermic family. These soils are mainly on ridgetops and moderate slopes in the eastern part of the county. They are adjacent to Tippah and Boswell soils. The Dulac soils are somewhat similar to the Tippah soils, but Dulac soils have a fragipan and Tippah soils do not. The Dulac soils are more silty and less clayey in the upper Bt horizon than are the Boswell soils, which do not have a fragipan.

Profile of Dulac silt loam that has slopes of 5 percent; 0.2 mile east of Shaw's store and 0.1 mile north of State Route 8, 50 feet west of gravel road (sec. 22, T. 22 N., R. 7 E.):

Ap—0 to 5 inches, brown (10YR 5/3) silt loam; weak, fine and medium, granular structure; friable; many fine roots; common worm casts; strongly acid; abrupt, smooth boundary.

B21t—5 to 18 inches, strong-brown (7.5YR 5/6) silty clay loam; moderate, fine and medium, subangular blocky structure; firm; few fine and medium roots; few worm casts; patchy clay films; very strongly acid; abrupt, smooth boundary.

B22tx—18 to 36 inches, brown (7.5YR 4/4) silt loam with many, coarse, distinct, light brownish-gray (10YR 6/2) mottles; moderate, medium and coarse, subangular blocky structure; firm and compact; brittle; few fine roots in upper part; few, fine, black concretions; light-gray (10YR 7/2) silt coatings on peds, in cracks, and in old root channels; very strongly acid; abrupt, smooth boundary.

IIB23t—36 to 46 inches, mottled reddish-brown (2.5YR 4/4) and gray (5Y 5/1) clay; moderate, fine and medium, angular blocky structure; very firm when moist, plastic when wet; continuous clay films on peds; few roots in cracks; few fine rocks; very strongly acid; clear, smooth boundary.

IIB3t—46 to 60 inches, mottled light-gray (5Y 6/1), yellowish-red (5YR 5/8), and brownish yellow (10YR 6/6) clay; weak, coarse, angular blocky structure; very firm when moist, very plastic when wet; few fine rocks; very strongly acid.

The Ap horizon ranges from dark grayish brown to brown, and, in severely eroded areas, to dark yellowish brown. The B2t horizon ranges from yellowish brown to dark brown. Depth to the fragipan ranges from 16 to 28 inches, and depth to the plastic clay ranges from 20 to 42 inches.

FALAYA SERIES

The soils of the Falaya series are Aeric Cumulic Normaquepts in a coarse silty, mixed, acid, thermic family. These soils are somewhat poorly drained. They occur throughout the county on stream bottoms. Slopes range from 0 to 3 percent. The Falaya soils are adjacent to the Collins and Waverly soils. Falaya soils have a chroma of 2 or less at a depth of 10 to 20 inches, but the Collins soils have mottles with a chroma of 2 or less at a depth of 20 to 30 inches, and the Waverly soils have a chroma of 2 or less at a depth of less than 10 inches.

Profile of Falaya silt loam; in a cultivated field 1.25 miles north of the Yalobusha River on U.S. Highway No. 51, 0.5 mile east of the highway (sec. 5, T. 22 N., R. 5 E.):

Ap—0 to 10 inches, brown (10YR 4/3) silt loam; weak, medium, granular structure; friable; few fine roots; few worm casts; strongly acid; clear, smooth boundary.

C1—10 to 18 inches, mottled grayish-brown (10YR 5/2), pale-brown (10YR 6/3), and dark-brown (10YR 3/3) silt loam; structureless; friable; many, fine and medium, black concretions; strongly acid; gradual, smooth boundary.

C2g—18 to 34 inches, gray (10YR 6/1) silt loam with common, medium, distinct, yellowish-brown (10YR 5/6) and brownish-yellow (10YR 6/6) mottles; structureless; friable; common, fine and medium, brown and black concretions; strongly acid; gradual, smooth boundary.

C3g—34 to 60 inches, mottled grayish-brown (2.5Y 5/2), gray (10YR 6/1), and yellowish-brown (10YR 5/6) heavy silt loam; structureless; friable; strongly acid.

The A horizon ranges from brown or dark brown to dark grayish brown. The upper C horizon ranges from yellowish brown to brown or dark brown and is mottled

in some places. The lower C horizon is mottled with gray or is dominantly gray. Depth to the mottled or dominantly gray layer ranges from 10 to 20 inches.

FORESTDALE SERIES

The soils of the Forestdale series are Typic Ochraqualfs in a fine, mixed, thermic family. These soils have formed from clayey and silty alluvium. They are adjacent to the Alligator and Dubbs soils in the western part of the county. Forestdale soils are more clayey and grayer than Dubbs soils. The Bt horizon of Forestdale soils has a chroma of 2 or less, but the B2t horizon of Dubbs soils has a chroma of 3 or more. Forestdale soils are less clayey throughout than Alligator soils, which do not have a Bt horizon.

Profile of Forestdale silty clay loam in a cultivated field; 2 miles south of State Route 8 and 350 feet west of Rabbit Bayou (sec. 30, T. 22 N., R. 2 E.):

Ap—0 to 6 inches, very dark grayish-brown (10YR 3/2) silty clay loam; weak, medium, granular structure; friable; few fine roots; few, fine, black concretions; very strongly acid; abrupt, smooth boundary.

B1—6 to 10 inches, mottled grayish-brown (10YR 5/2) and dark grayish-brown (10YR 4/2) silty clay loam; weak, fine, subangular blocky structure; friable; few, fine and medium, black concretions; few fine roots; evidence of some mixing of material from the Ap horizon; very strongly acid; abrupt, smooth boundary.

B2tg—10 to 31 inches, grayish-brown (10YR 5/2) silty clay with common, fine, distinct, yellowish-brown (10YR 5/8) mottles and few, fine, distinct, strong-brown (7.5YR 5/6) mottles; moderate, medium, angular and subangular blocky structure; firm; clay films on most peds; a few, fine, black and brown concretions; very strongly acid; gradual, smooth boundary.

Cg—31 to 48 inches +, gray (10YR 6/1) silty clay loam with many, medium, distinct, yellowish-brown (10YR 5/6) mottles and common, medium, distinct, strong-brown (7.5YR 5/6) mottles; massive; firm; many, fine and medium, black and brown concretions; very strongly acid.

The Ap horizon ranges from very dark grayish brown to grayish brown. The B2tg horizon ranges from grayish brown to gray in color and from heavy silty clay to clay in texture. In some places the B2tg horizon is silty clay in the upper part and silty clay loam in the lower part. The Cg horizon ranges from gray to light brownish gray in color and from silty clay loam to silt loam in texture.

GRENADA SERIES

The soils of the Grenada series are Ochreptic Fragiudalfs in a fine silty, mixed, thermic family. These soils formed in silty materials. They are adjacent to Memphis, Loring, Calloway, and Henry soils. Like Calloway soils, Grenada soils are bisequel, but they have a chroma of 2 in the Ap horizon and Calloway soils have mottles with a chroma of 2 in the upper 10 inches of the B&A horizon. Grenada soils have a stronger fragipan than the Loring soils and, unlike them, have essentially no clay films on peds in the upper B horizon. The Grenada soils, in contrast to Memphis soils, have a fragipan but no Bt horizon. Grenada soils have a thinner A horizon and a weaker fragipan than the Henry soils.

Profile of Grenada silt loam that has slopes of 1 percent; in a pasture 100 feet south of Riverdale Road and 0.9 mile east of U.S. Highway No. 51 (sec. 25, T. 23 N., R. 4 E.):

Ap—0 to 5 inches, grayish-brown (10YR 5/2) silt loam with common, coarse, faint, dark grayish-brown (10YR 4/2) mottles; weak, fine and medium, granular structure; friable; common fine roots; few worm casts; few, fine, black concretions; few iron stains; plow pan in the lower part of horizon; neutral; abrupt, smooth boundary.

A2—5 to 7 inches, brown (10YR 5/3) silt loam with few, medium, faint, grayish-brown (10YR 5/2) mottles; weak, medium, granular and weak, fine, subangular blocky structure; friable; few fine roots; few worm casts; few iron stains; few, fine, black concretions; some material from the Ap horizon in worm channels; slightly acid; abrupt, smooth boundary.

B21—7 to 17 inches, strong-brown (7.5YR 5/6) heavy silt loam; moderate, medium, subangular blocky structure; friable; few fine roots; few worm casts; some material from the A2 horizon in old root channels; few fine and medium concretions; medium acid; clear, smooth boundary.

B22—17 to 22 inches, yellowish-brown (10YR 5/6) heavy silt loam with few, medium, distinct, light brownish-gray (10YR 6/2) mottles; moderate, fine and medium, subangular blocky structure; friable; few fine roots; common, fine and medium, black concretions; some material from the A2 horizon in old root channels; strongly acid; clear, wavy boundary.

A'2x&Bx—22 to 28 inches, light yellowish-brown (10YR 6/4) silt loam with many, medium and distinct, coarse, light brownish-gray (10YR 6/2) mottles; weak to moderate, fine and medium, angular and subangular blocky structure; friable; many, fine, medium and large, black concretions; few fine roots in cracks; few fine voids and vesicles; strongly acid; clear, wavy boundary.

B'2xg—28 to 45 inches, mottled yellowish-brown (10YR 5/6), light-gray (10YR 7/1), and pale-brown (10YR 6/3) heavy silt loam; coarse prismatic structure that breaks to moderate angular and subangular blocky structure; firm and compact, hard when dry; common, fine and medium, black and brown concretions; common black and brown coatings on peds; few fine voids; few patchy clay films; light-gray (10YR 7/2) silt coatings on peds and in cracks; strongly acid; gradual, wavy boundary.

B'3x—45 to 60 inches +, yellowish-brown (10YR 5/6) silt loam with many, coarse, faint, pale-brown (10YR 6/3) mottles; coarse prismatic structure that breaks to weak, medium and coarse, subangular blocky structure; friable; few, fine, black and brown concretions; few black and brown coatings; medium acid.

The A1 horizon ranges from grayish brown to dark grayish brown, and the Ap horizon ranges from grayish brown to brown. The B21 and B22 horizons range from silt loam to light silty clay loam. The A'2x&Bx horizon is mottled light yellowish-brown, pale-brown, and light-gray silt loam. The B'x horizon ranges from yellowish brown to brown mottled with pale brown or light gray. Depth to the fragipan ranges generally from 18 to 30 inches, but in some severely eroded areas, it is about 16 inches.

GUIN SERIES

The soils of the Guin series are Typic Dystrochrepts in a sandy skeletal, siliceous, thermic family. These soils are sandy or gravelly and excessively drained. They are on short choppy side slopes of the hilly uplands in the western part of the county. Slopes range from 17 to 50 percent. Guin soils are adjacent to the Memphis soils. The control section of Guin soils is sandy skeletal

and has no B horizon, but that of the Memphis soils is fine silty and has a B horizon.

Profile of Guin gravelly sandy loam that has slopes of 40 percent; 5 miles south of Holcomb on paved road, 200 yards east of road near gravel pit (sec. 9, T. 21 N., R. 3 E.):

O1—½ to ¼ inch, leaves and twigs.
O2—¼ inch to 0, leaf mold and partly decomposed litter.
A1—0 to 2 inches, dark grayish-brown (10YR 4/2) gravelly fine sandy loam; weak, fine, granular structure; very friable; few fine roots; strongly acid; abrupt, wavy boundary.
A2—2 to 6 inches, brown (10YR 5/3) gravelly sandy loam; weak, fine, granular structure; very friable; many roots; 25 percent gravel; strongly acid; clear, wavy boundary.
C1—6 to 30 inches, light yellowish-brown (10YR 6/4) gravelly sand; structureless; loose; 40 percent gravel; strongly acid; irregular boundary.
C2—30 to 72 inches +, red (10R 4/6) gravelly sandy clay loam; structureless; firm; 60 percent of this layer is gravel ranging from ½ inch to 3 inches in size; strongly acid.

The A horizon ranges from dark grayish brown to yellowish brown in color and from gravelly sandy loam to gravelly silt loam in texture. Its content of gravel is 15 to 30 percent, by volume. The C horizon ranges from light yellowish brown to red in color and from gravelly sand to gravelly sandy clay loam in texture. Its content of gravel is 30 to 75 percent.

HENRY SERIES

The soils of the Henry series are Typic Fragiaqualfs in a fine silty, mixed, thermic family. These soils have a gray heavy silt loam fragipan near the surface. They occur throughout the county on flats and in depressions in the uplands. Slopes range from 0 to 2 percent. The Henry soils are adjacent to the Calloway and Grenada soils. In contrast to those soils, Henry soils are not bisequel, generally have lower chromas, and have clay films in the upper B horizons.

Profile of Henry silt loam that has slopes of ½ percent; in a pasture 0.5 mile west of Geeslin Corner on paved road, 0.1 mile north on gravel road, and 75 feet west of gravel road (sec. 26, T. 23 N., R. 4 E.):

Ap—0 to 4 inches, dark grayish-brown (10YR 4/2) silt loam with common, medium, faint, light-gray (2.5Y 7/2) mottles; weak, fine and medium, granular structure; friable; few worm casts; common fine roots; few, fine, black concretions; strongly acid; abrupt, smooth boundary.
A21gx—4 to 8 inches, mottled light-gray (2.5Y 7/2) and grayish-brown (10YR 5/2) silt loam; weak, fine, granular and subangular blocky structure; friable; few, fine and medium, black and brown concretions increasing in lower part; few worm casts; strongly acid; abrupt, smooth boundary.
A22gx—8 to 16 inches, gray (5Y 6/1) silt loam with common, medium, distinct, pale-yellow (2.5Y 7/4) mottles; weak, fine and medium, angular blocky structure; friable; few fine roots; few vesicles; common, fine and medium, black and brown concretions; strongly acid; abrupt, smooth boundary.
B&A23gx—16 to 23 inches, grayish-brown (2.5Y 5/2) heavy silt loam with common, medium, faint, light-gray (5Y 7/2) mottles and few, fine, distinct, pale-yellow (5Y 7/4) mottles; moderate, fine and medium, angular and subangular blocky structure; slightly sticky when wet, firm and compact when moist; brittle; few fine roots in cracks; few fine voids and vesicles; few tongues of silt in cracks; material from upper horizons in old root channels; very strongly acid; clear, smooth boundary.
B2tgx—23 to 41 inches, pale-olive (5Y 6/3) heavy silt loam with light-gray (10YR 7/1) silt on some peds and in cracks; moderate, medium, angular and subangular blocky structure; hard when dry, firm when moist; compact; brittle; few roots and gray tongues of silt in cracks; few fine voids; few, fine, brown concretions; strongly acid; gradual, smooth boundary.
B3tgx—41 to 60 inches +, light yellowish-brown (2.5Y 6/4) heavy silt loam with common, fine, distinct, light-gray (10YR 7/1) mottles; weak, coarse, subangular blocky structure; firm when moist, hard when dry; few, fine, black and brown concretions; neutral.

The Ap horizon ranges from dark grayish brown or grayish brown to brown, and the A1 horizon ranges from very dark grayish brown to grayish brown. The A2gx horizon ranges from gray to light gray. The Btg horizon ranges from gray to pale olive or light yellowish brown in color and from silt loam to silty clay loam in texture. Depth to the fragipan ranges from 4 to 16 inches. The reaction ranges from very strongly acid in the A and upper B horizons to neutral in the B3 horizon.

LORING SERIES

The soils of the Loring series are Typic Fragiudalfs in a fine silty, mixed, thermic family. These soils are on slopes of 0 to 12 percent. They occur on gentle to rolling ridges throughout the central and western parts of the county. Loring soils are adjacent to Providence, Memphis, and Grenada soils. The loess mantle of the Loring soils is thicker than that of the Providence soils. In texture and color, Loring soils are similar to Memphis soils, which do not have a fragipan. The fragipan of Loring soils is less strongly developed than that of Grenada soils. Unlike the Grenada soils, Loring soils are not bisequel and have clay films in the upper B horizon.

Profile of Loring silt loam that has slopes of 3 percent; in a pasture 3.4 miles south of Holcomb on paved road and east 0.7 mile on gravel road (NE¼NE¼ sec. 4, T. 21 N., R. 3 E.):

Ap—0 to 6 inches, brown (10YR 5/3) silt loam; weak, fine and medium, granular structure; friable; many fine roots; few old root channels; few worm casts; strongly acid; abrupt, smooth boundary.
B21t—6 to 21 inches, brown (7.5YR 4/4) silty clay loam; moderate, fine and medium, subangular blocky structure; friable to firm when moist, slightly hard when dry; few fine and medium roots; few old root channels filled with material from the Ap horizon; few worm casts; thin clay films on some peds; strongly acid; clear, smooth boundary.
B22t—21 to 29 inches, brown (7.5YR 4/4) silty clay loam with common, medium, faint, yellowish-brown (10YR 5/6) mottles; moderate, medium, subangular blocky structure; friable to firm when moist, slightly hard when dry; few, fine, dark concretions; medium, black coatings on some peds; light-gray (10YR 7/2) silt coatings on some peds and in old root channels; thin clay films on some peds; strongly acid; clear, wavy boundary.
B23x—29 to 36 inches, brown (7.5YR 4/4) silt loam with common, fine and medium, distinct, light-gray (10YR 7/2) mottles and few, distinct, light yellowish-brown (10YR 6/4) mottles; moderate, medium, subangular blocky structure; friable when moist, hard when dry; compact and brittle; light-gray (10YR 7/2) silt in cracks and coating on some peds; few fine roots in cracks; few, fine, dark concretions; few fine voids; strongly acid; clear, wavy boundary.

B24tx—36 to 45 inches, brown (7.5YR 4/4) silt loam with common, fine and medium, distinct, light yellowish-brown (10YR 6/4) and light-gray (10YR 7/2) mottles; moderate, medium and coarse, subangular blocky structure; friable when moist, hard when dry; compact and brittle; few fine roots in cracks; few fine voids; few, fine, dark concretions; few medium, black coatings on some peds; gray (10YR 6/1) silt in cracks and on some peds; strongly acid; gradual, wavy boundary.

B3x—45 to 60 inches +, brown (7.5YR 4/4) silt loam with many, medium, distinct, light yellowish-brown (10YR 6/4) mottles; coarse prismatic structure that breaks to weak, coarse, subangular blocky structure; friable; few, medium, black coatings on some peds; gray (10YR 6/1) silt in cracks and on some peds; strongly acid.

In severely eroded areas the Ap horizon ranges from grayish brown to brown or to dark yellowish brown. The A1 horizon ranges from dark grayish brown to grayish brown. The B2t horizon ranges from strong brown to brown or dark brown in color and from silty clay loam to heavy silt loam in texture. The B3x horizon ranges from brown or yellowish brown to dark brown. Depth to the fragipan ranges from 24 to 36 inches.

MEMPHIS SERIES

The soils of the Memphis series are Typic Normudalfs in a fine silty, mixed, thermic family. These soils are well drained. They have slopes of 0 to 50 percent and are on uplands, mainly in the western part of the county. Memphis soils are adjacent to the Loring, Grenada, and Guin soils. In color and texture, Memphis soils are similar to Loring soils, which also have a Bt horizon, but Memphis soils do not have a fragipan. Memphis soils, in contrast to Grenada soils, lack a fragipan and are not bisequel.

Profile of Memphis silt loam that has slopes of 1 percent; in a cultivated field 0.25 mile east of bluff line, north of State Route 7 (sec. 31, T. 22 N., R. 3 E.):

Ap—0 to 7 inches, dark-brown silt loam (10YR 4/3); weak, fine and medium, granular structure; friable; common roots and worm casts; slightly acid; abrupt, smooth boundary.

B1t—7 to 12 inches, brown (7.5YR 4/4) light silty clay loam; weak, fine and medium, subangular blocky structure; firm when moist, hard when dry; few roots and worm holes; thin clay films on some peds; strongly acid; clear, smooth boundary.

B21t—12 to 26 inches, brown (7.5YR 4/4) silty clay loam; moderate, fine and medium, subangular blocky structure; friable; thin clay films on some peds; few fine roots and worm holes; strongly acid; clear, smooth boundary.

B22t—26 to 42 inches, brown (7.5YR 4/4) heavy silt loam; moderate, medium, subangular blocky structure; friable; few roots; patchy clay films; strongly acid; clear, wavy boundary.

B3—42 to 58 inches, strong-brown (7.5YR 5/6) silt loam; moderate, coarse and medium, subangular blocky structure; firm in place, but friable when broken down; light-gray silt coatings on some peds; few, fine, black concretions; strongly acid; clear, wavy boundary.

C—58 to 80 inches, yellowish-brown (10YR 5/6) silt loam; structureless; friable; strongly acid.

The Ap horizon ranges from dark brown to brown and, in severely eroded areas, to dark yellowish brown. The A1 horizon ranges from very dark grayish brown to brown. The Bt horizon ranges from strong brown to dark brown, but brown is the dominant color. The texture of the Bt horizon ranges from silty clay loam to heavy silt loam.

PROVIDENCE SERIES

The soils of the Providence series are Typic Fragiudalfs in a fine silty, mixed, thermic family. These soils are on uplands in the central and eastern parts of the county. Slopes range from 2 to 17 percent. Providence soils are adjacent to Ruston, Loring, and Cuthbert soils. In contrast to Ruston soils, Providence soils have a fragipan and their B21t horizon is silty clay loam rather than sandy clay loam. The loess mantle of the Providence soils is thinner than that of Loring soils. Providence soils are less clayey and have a thicker solum than Cuthbert soils, which lack a fragipan.

Profile of Providence silt loam that has slopes of 6 percent; in a pasture 0.6 mile west of Providence Church on dirt road, 50 feet south of road (sec. 1, T. 21 N., R. 6 E.):

Ap—0 to 5 inches, brown (10YR 5/3) silt loam; weak, fine and medium, granular structure; friable; many fine roots; common worm casts; strongly acid; abrupt, smooth boundary.

B1—5 to 8 inches, strong-brown (7.5YR 5/6) silt loam; weak, fine and medium, subangular blocky structure; friable; common fine roots; few worm casts; very strongly acid; abrupt, smooth boundary.

B21t—8 to 24 inches, strong-brown (7.5YR 5/6) silty clay loam; moderate, fine and medium, subangular blocky structure; firm; few roots; thin clay films around peds; few, fine, black concretions in lower part; very strongly acid; clear, smooth boundary.

B22xt—24 to 32 inches, strong-brown (7.5YR 5/6) silt loam with common, medium, distinct, light-gray (10YR 7/2) mottles and many, coarse, distinct, light yellowish-brown (10YR 6/4) mottles; moderate, medium, subangular and angular blocky structure; friable when moist, hard when dry; compact; few, fine and medium, black and brown concretions; light-gray silt coatings on some peds and in cracks; patchy clay film on peds; very strongly acid; clear, smooth boundary.

IIB23t—32 to 46 inches, strong-brown (7.5YR 5/6) sandy loam with many, medium, distinct, pale-brown (10YR 6/3) and light brownish-gray (10YR 6/2) mottles; moderate, medium, subangular and angular blocky structure; friable when moist, hard when dry; compact; few, fine and medium, black and brown concretions; light-gray silt coatings on some peds and in cracks; patchy clay films; very strongly acid; clear, smooth boundary.

IIB3—46 to 60 inches, yellowish-red (5YR 5/6) loamy sand with few, medium, distinct, light yellowish-brown (10YR 6/4) mottles; weak, medium, subangular and angular blocky structure; friable; very strongly acid.

The A horizon ranges from dark grayish brown to brown or dark yellowish brown, and the B horizon ranges from strong brown to yellowish red. The texture of the B horizon ranges from silt loam or silty clay loam in the upper part to loamy sand, loam, and sandy clay loam in the lower part. Depth to the fragipan ranges from 18 to 32 inches, and the depth to sandy material ranges from 20 to 46 inches.

RUSTON SERIES

The soils of the Ruston series are Typic Normudults in a fine loamy, siliceous, thermic family. These soils are on hilly uplands, mainly in the eastern part of the county. Ruston soils are adjacent to Cuthbert, Providence, and Loring soils. Unlike Loring and Providence soils, Ruston soils lack a fragipan and have a Bt hori-

zon of sandy clay loam rather than silty clay loam. Compared with Cuthbert soils, Ruston soils are less clayey and have a thicker solum.

Profile of Ruston fine sandy loam that has slopes of 32 percent; in a wooded area 1.25 miles east of the intersection of State Route 8 and Grenada Lake Road, 50 feet south of State Route 8 (SW¼SE¼ sec. 10, T. 22 N., R. 5 E.):

A1—0 to 3 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine and medium, granular structure; very friable; many fine roots and worm casts; very strongly acid; abrupt, smooth boundary.

A2 3 to 8 inches, brown (10YR 5/3) fine sandy loam; weak, fine and medium, granular structure; very friable; many fine roots and worm casts; very strongly acid; clear, smooth boundary.

A3—8 to 16 inches, yellowish-brown (10YR 5/4) fine sandy loam with few, medium, distinct, strong-brown (7.5YR 5/6) mottles; weak, fine, subangular blocky structure; friable; many fine roots; many worm casts; very strongly acid; abrupt, smooth boundary.

B21t—16 to 29 inches, yellowish-red (5YR 5/6) sandy clay loam; moderate, fine and medium, subangular blocky structure; friable; common fine roots; few worm casts; thin patchy clay films on some peds; very strongly acid; abrupt, smooth boundary.

B22t—29 to 34 inches, reddish-yellow (5YR 6/8) loam; moderate, fine and medium, subangular blocky structure; friable; few coarse roots; few, thin, patchy clay films; very strongly acid; clear, smooth boundary.

B3t—34 to 40 inches, yellowish-red (5YR 5/6) loam with few, fine, faint, red (2.5YR 4/6) and reddish-yellow (5YR 6/8) mottles; weak; medium, subangular blocky structure; friable; few fine iron crusts; few coarse roots; sand grains bridged with clay; very strongly acid; clear, smooth boundary.

C—40 to 60 inches, yellowish-red (5YR 5/6) fine sandy loam; structureless; friable; few fine iron crusts; very strongly acid.

The A1 horizon ranges from very dark grayish brown to grayish brown. The A2 horizon ranges from yellowish brown to pale brown and from fine sandy loam to sandy loam. The B horizon ranges from yellowish red to strong brown and from sandy clay loam to sandy loam.

TIPPAH SERIES

The soils in the Tippah series are Typic Normudults in a fine silty over fine, mixed, thermic family. These soils have slopes of 8 to 40 percent and are on hilly uplands, mainly in the eastern part of the county. Tippah soils are adjacent to Dulac and Boswell soils. Unlike the Dulac soils, Tippah soils do not have a fragipan. They are more silty and less clayey in the upper Bt horizons than the Boswell soils.

Profile of Tippah silt loam that has slopes of 10 percent; in a wooded area 150 feet south and 1 mile east of Shaw's Store on State Route 8 (sec. 22, T. 22 N., R. 7 E.):

O1—½ to ¼ inch, leaves and twigs.

O2—¼ inch to 0, partly decomposed leaves and twigs.

A1—0 to 2 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine and medium, granular structure; very friable; many fine and medium roots; many worm casts; very strongly acid; abrupt, smooth boundary.

A2—2 to 6 inches, brown (10YR 5/3) silt loam; weak, medium, granular structure; friable; common fine and medium roots; common worm casts; some material from the A1 horizon in worm and root channels; very strongly acid; abrupt, smooth boundary.

B1—6 to 9 inches, strong-brown (7.5YR 5/6) heavy silt loam; weak, fine and medium, subangular blocky structure; friable; few fine roots; common worm casts; some material from the A2 horizon in worm and root channels; very strongly acid; clear, smooth boundary.

B21t—9 to 16 inches, yellowish-red (5YR 5/6) silty clay loam; moderate, fine and medium, subangular blocky structure; friable; few worm casts; few fine roots; clay films on some peds; very strongly acid; abrupt, smooth boundary.

B22t—16 to 20 inches, strong-brown (7.5YR 5/6) silty clay loam with few, fine, faint, yellowish-brown (10YR 5/8) mottles and few, fine, distinct, red (2.5YR 4/6) mottles; moderate, fine and medium, subangular blocky structure; friable to firm; few fine roots; common fine gravel; clay films on some peds; very strongly acid; clear, smooth boundary.

IIB23t—20 to 34 inches, red (2.5YR 4/6) to (10R 4/6) clay with many, fine, prominent, pale-brown (10YR 6/3) mottles, common, fine, prominent, light-gray (10YR 7/2) mottles, and few, medium, prominent, yellowish-brown (10YR 5/6) mottles; moderate, fine, angular blocky structure; firm when moist, plastic when wet; some material from the B22t horizon in cracks; few fine roots; very strongly acid; clear, smooth boundary.

IIB3t—34 to 46 inches, pale-olive (5Y 6/3) clay with many, large, distinct, gray (10YR 5/1) mottles and few, fine, prominent, red (10R 4/6) mottles; weak, fine, angular blocky structure; very firm when moist, plastic when wet; thin layers of varicolored clay; very strongly acid; clear, smooth boundary.

IIC—46 to 60 inches +, thinly stratified layers of light-gray (10YR 7/2), dark-brown (10YR 3/3), red (10R 4/6), and pale-olive (5Y 6/3) clay; massive; very firm when moist, plastic when wet; very strongly acid.

The A1 horizon ranges from very dark grayish brown to grayish brown, and the Ap horizon ranges from brown to grayish brown. The B1 horizon ranges from brown to strong brown in color and from heavy silt loam to light silty clay loam in texture. The B2t horizon ranges from strong brown to yellowish red. Depth to the clay ranges from 12 to 36 inches but generally is about 20 inches.

VICKSBURG SERIES

The soils of the Vicksburg series are Cumulic Haplorthents in a coarse silty, mixed, acid, thermic family. These soils are on stream bottoms, mainly in the central and western parts of the county. The Vicksburg soils are adjacent to the Collins, Falaya, and Cascilla soils. The Vicksburg soils are free of mottles with a chroma of 2 to a depth of 30 inches or more, but Collins soils have mottles with a chroma of 2 at a depth of 20 to 30 inches and Falaya soils, at a depth of 10 to 20 inches. In drainage the Vicksburg soils are similar to the Cascilla soils, which have a fine silty control section and a weakly developed B horizon, but Vicksburg soils have a coarse silty control section and no B horizon.

Profile of Vicksburg silt loam; in a cultivated field 2 miles south of Grenada along Perry Creek (N½ sec. 20, T. 22 N., R. 5 E.):

Ap—0 to 6 inches, yellowish-brown (10YR 5/4) silt loam; weak, fine and medium, granular structure; very friable; many fine roots and worm casts; medium acid; abrupt, smooth boundary.

C1—6 to 15 inches, brown (10YR 5/3) silt loam; structureless; friable; many fine roots and worm casts; medium acid; abrupt, smooth boundary.

C2—15 to 26 inches, brown (10YR 4/3) silt loam; structureless; friable; few fine roots; many worm casts; medium acid; clear, smooth boundary.

C3—26 to 36 inches, thinly layered brown (10YR 4/3) silt loam; structureless; friable; few roots; few worm casts; medium acid; clear, smooth boundary.
C4—36 to 48 inches +, thinly stratified brown (10YR 5/3) and pale-brown (10YR 6/3) silt loam with common, medium, faint, light-gray (10YR 7/2) mottles; structureless; friable; few thin lenses of sand; medium acid.

The A horizon ranges from brown or yellowish brown to dark grayish brown. The C horizon ranges from brown to dark brown in color and from silt loam to silt in texture. It is stratified with pale brown in the lower part and is mottled with gray or light gray at a depth of 30 inches.

WAVERLY SERIES

The soils in the Waverly series are Cumulic Normaquepts in a coarse silty, mixed, acid, thermic family. These poorly drained soils occur on stream bottoms throughout the county. The Waverly soils are adjacent to the Collins and Falaya soils. They are more grayish and more poorly drained than Collins and Falaya soils. The Waverly soils have a dominant chroma of 2 or less at a depth of less than 10 inches, whereas Collins soils have mottles with a chroma of 2 or less at a depth of 20 to 30 inches, and Falaya soils have mottles with a chroma of 2 at a depth of 10 to 20 inches.

Profile of Waverly silt loam that is nearly level; in a wooded area 0.9 mile south of State Route 8, 150 feet west of Wolf Lake Road (SE¼NE¼ sec. 21, T. 22 N., R. 2 E.):

O1—1 to ½ inch, forest litter composed of leaves and twigs.
O2—½ inch to 0, partly decomposed forest litter.
A1 0 to 5 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, fine and medium, granular structure; very friable; many fine and medium roots; slightly acid.
C1g—5 to 24 inches, gray (10YR 6/1) silt loam with many, medium, distinct, brownish-yellow (10YR 6/8) mottles; structureless; friable; few fine roots; few old root channels; very strongly acid; clear, smooth boundary.
C2g—24 to 60 inches +, gray (10YR 6/1) silt loam with many, medium, distinct, brownish-yellow (10YR 6/8) and yellow (10YR 7/8) mottles; structureless; friable; firm; few fine roots; few, fine and medium, black and brown concretions; pockets of silty clay loam; very strongly acid.

The A horizon ranges from very dark grayish brown to grayish brown. The C horizon ranges from silt loam to light silty clay loam in texture. The reaction ranges from very strongly acid to strongly acid.

Additional Facts About the County

This section contains information for those who are not familiar with Grenada County. In this section the climate, physiography, and water supply are discussed, and some facts about agriculture are given. The figures for population and the statistics on agriculture are mainly from reports of the U.S. Bureau of the Census.

Grenada County was created on May 9, 1870 from parts of the old Yalobusha, Tallahatchie, Carroll, and Choctaw Counties. This land formed part of the territory originally ceded by the Choctaw Indians. In 1870 Grenada was named the county seat. The history of this town dates back to the earliest settlements along the Yalobusha River. Other towns in the county are Holcomb, Elliott, and Gore Springs.

The population of the county was 10,571 in 1870, 14,112 in 1900, and 18,409 in 1960. The population of Grenada, the county seat, was 7,914 in 1960.

Climate [5]

The principal influences that determine the climate of Grenada County are its subtropical latitude, the huge land mass to the north, the proximity to the warm waters of the Gulf of Mexico, and the prevailing southerly winds.

In summer the prevailing southerly winds provide moist, tropical weather, but occasionally winds from the west bring droughts, such as those in 1924, 1925, 1954, and 1960. In winter, periods of moist, tropical air and dry, polar air alternate. These changes sometimes bring rather large and sudden shifts in temperature, but cold spells are generally short.

The average annual temperature is 63.9°F. The average temperature from July through September is 79.5°, from October through December is 54.9°, from January through March is 49.6°, and from April through June is 71.6°.

A temperature of 32° or lower occurs on an average of 60 days a year, and a temperature of 90° or higher occurs on an average of 78 days a year. Temperature of 90° or higher occurs in about 12 percent of the hours from May through October, and a temperature of 80° or higher occurs about 32 percent of the hours in the same period. During the months of November through April, the temperature is 70° or higher in about 9 percent of the hours and below 50° in about 44 percent of the hours. A temperature of 20° or lower occurs at least once each winter. The ground freezes occasionally, but the freeze is shallow, and the ground generally thaws rapidly.

The average date of the last killing frost in spring is March 25, and that of the first killing frost in fall is October 27. The growing season in this county is 216 days.

The relative humidity is 60 percent or higher for 65 percent of the time, and is 40 percent or less for only 12 percent of the time. When the temperature is 90° or higher, relative humidity seldom exceeds 80 percent, but it ranges from 50 to 79 percent for 26 percent of the time. Even when the temperature is below 50°, the relative humidity is greater than 50 percent for more than half the time.

In the period 1931 through 1960, the average annual rainfall in this county was 52.30 inches. Winter and spring are the wettest seasons, and summer and fall are the driest, though the differences among seasons is not great. The average rainfall in January, February, and March totaled 17.24; in April, May, and June, 12.04 inches; in July, August, and September, 10.57 inches; and in October, November, and December, 12.45. October is the driest month and is generally the most pleasant month of the year. Precipitation in winter and spring often comes in prolonged rains, usually because warm

[5] W. CLYDE CONNER, meteorologist, U.S. Weather Bureau, helped prepare this section.

air from the Gulf of Mexico overrides cold air at the surface. In summer and early in fall, precipitation is in the form of thundershowers. Local droughts occur because these showers are widely scattered and bypass areas that need rain. On the other hand, precipitation of 3 inches or more may occur in 24 hours during any month and cause flash floods in local areas.

Sleet or snow occur on an average of 2 out of every 3 years, mainly during January. Since temperatures below freezing last only 1 to 3 days, snow stays on the ground for only a few days.

Thunderstorms occur rather frequently, but tornadoes and hailstorms occur only once in every 11 years. The winds from hurricanes seldom reach as far inland as Grenada County, but the rains that result from hurricanes may be prolonged and heavy.

Physiography

Grenada County is drained by the Yalobusha River and its tributaries. The county can be divided into three physiographic areas that extend from north to south across the county. From west to east, they are the Mississippi River alluvial plain, the loessal hills, and that part of the Coastal Plain east of these hills.

The Mississippi River alluvial plain extends from the western boundary of the county eastward to the loessal hills. This plain is made up of nearly level silty and clayey soils. The silty soils formed in alluvium that was washed from nearby uplands or was brought in streams from distant loessal hills. The clayey soils are in slack-water areas and formed in alluvium of the Mississippi River.

The loessal hills are just east of the Mississippi River alluvial plain and extend through the middle of the county. These hills are in a nearly level to very steep area where the soils formed in loess and are silty. The mantle of loess in this area is about 30 feet thick at its extreme western edge, but it thins progressively towards the east. The loess probably was deposited during the ice age after melting glaciers created a river much larger than the present Mississippi River. The glacial river deposited rock flour and other finely ground rock along its sides as it flowed towards the Gulf of Mexico. After the river receded, the sediments dried and were exposed to wind. The prevailing wind blew the fine material to the hills and valleys, where it was deposited along the eastern rim of the river valley.

The part of the Coastal Plain that extends from the loessal hills eastward to the county line is gently sloping to very steep. The soils in this area formed mainly in sediments of the Coastal Plain that were laid down by the seas during the Pliocene epoch. After the seas receded, this material was covered by a thin layer of loess, which remains on some of the ridges. Geologic erosion has removed the loess from the side slopes, however, and has left only the Coastal Plain material.

Water Supply

Water for domestic use is obtained from springs and from wells that are bored or dug. One of the principal water-bearing beds in the hill section of the county is the Meridian sand member of the Tallahatta formation of the Claiborne group, another is the basal sand member of the Holly Springs formation near the middle of the Wilcox group. The Meridian sand extends from the surface to a depth of 280 feet. The sand member of the Holly Springs formation is at a depth of 284 to 521 feet. On the Delta water is abundant in shallow, bored or drilled wells that penetrate the underlying alluvium (*3*).

Industries and Transportation

Industries in the county include plants that manufacture hosiery, auto wheel covers, mirrors, and heating and air-conditioning units and parts. Also, there are a cottonseed oil mill, a wood preserving plant, a hardwood flooring plant, a meat packing plant, and several cotton gins. Several high-pressure gaslines cross the county. U.S. Highway No. 51, Interstate Highway No. 55, and State Routes 7, 8, and 35, as well as the Illinois Central Railroad, connect parts of the county with distant cities.

Agriculture

Little is known about the earliest agriculture in the county. Although the Indians grew corn, they obtained most of their food by hunting and fishing. The first settlers grew corn, peas, beans, potatoes, and other crops for their own use.

In the 1800's cotton was grown extensively and shipped from ports on the Yalobusha River. Cotton is still the most important cash crop in the county, but its acreage has decreased since acreage was restricted in the 1930's. In recent years farming has become more diversified. Of increasing importance are livestock, particularly beef cattle, and, to feed the livestock, soybeans, corn, pasture, and small grain.

In 1959, reports from most of the farms in the county showed 376 miscellaneous and unclassified farms, 374 cotton farms, and 134 livestock farms other than dairy and poultry. Of the remaining farms reporting, 27 are general farms, 11 are poultry farms, 5 are dairy farms, and 5 are fieldcrop farms other than cotton.

Since 1954, the number of farms has decreased, and the size of farms has increased. According to the Census of Agriculture, the number decreased from 1,394 in 1954 to 966 in 1959, but 60 of this reduction was a result of a change in the definition of a farm. The size of the average farm has increased from 143.2 acres in 1954 to 180.5 acres in 1959.

Literature Cited

(1) American Association of State Highway Officials.
1961. standard specifications for highway materials and methods of sampling and testing. Ed. 8, 2 v., illus. Washington, D.C.

(2) Baldwin, M., Kellogg, C. E., and Thorp, J.
1938. soil classification. U.S. Dept. Agr. Ybk. 1938: 978–1001.

(3) Brown, Glen F., and Adams, Robert W.
1943. geology and ground water supply at camp McCain. Bul. 55, 116 pp., illus.

(4) McCarthy, E. F.
1933. YELLOW POPLAR CHARACTERISTIC, GROWTH AND MANAGEMENT. USDA Tech. Bul. 356, 58 pp., illus.
(5) Portland Cement Association.
1956. PCA SOIL PRIMER. 86 pp., illus. Chicago, Ill.
(6) Schnur, G. Luther.
1937. YIELD, STAND, AND VOLUME TABLES FOR EVEN-AGED UPLAND OAK FORESTS. USDA Tech. Bul. 560, 88 pp., illus.
(7) Simonson, Roy W.
1962. SOIL CLASSIFICATION IN THE UNITED STATES. Sci. 137: 1027–1034.
(8) Thorp, James, and Smith, Guy D.
1949. HIGHER CATEGORIES OF SOIL CLASSIFICATION: ORDER, SUBORDER, AND GREAT SOIL GROUP. Soil Sci. 67: 117–126.
(9) United States Department of Agriculture.
1929. VOLUME, YIELD, AND STAND TABLES FOR SECOND GROWTH SOUTHERN PINES. Misc. Pub. 50, 202 pp. (Now out of print.)
(10) ———
1958. MISSISSIPPI FORESTS. U.S. Forest Service, Forest Survey Release 81, 52 pp., illus.
(11) ———
1960. SOIL CLASSIFICATION, A COMPREHENSIVE SYSTEM, 7TH APPROXIMATION. 265 pp., illus.
(12) Waterways Experiment Station, Corps of Engineers.
1953. THE UNIFIED SOIL CLASSIFICATION SYSTEM. Tech. Memo. 3–357, 2 v. and appendix.

Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster, such as a clod, crumb, block, or prism.

Alluvial soils. A great soil group consisting of soils derived from recently deposited alluvium that has been modified little by the soil-forming processes.

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available moisture capacity. The capacity of a soil to hold water in a form available to plants. Amount of moisture held in soil between field capacity, or about one-third atmosphere of tension, and the wilting coefficient, or about 15 atmospheres of tension.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt. See also Texture, soil.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Firm.—When moist, soil crushed under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Friable.—When moist, soil crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Plastic.—When wet, soil readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, soil adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Control section. The part of a soil profile that strongly influences the placement of a soil into series in the current system of soil classification. As used in this county, it is from a depth of 10 to 40 inches, or to the bottom of the deepest diagnostic horizon, if that horizon extends below 40 inches, but the control section does not extend below 60 inches.

Diversion ditch. A ridge of earth, generally a terrace, that is built to divert runoff from its natural course and, thus, to protect areas downslope from the effects of such runoff.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented when dry, has a hard or very hard consistence, and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Gleyed soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray in color. The term "gleyed" is applied to soil horizons with yellow and gray mottling caused by intermittent waterlogging.

Gravel. A size grouping of coarse mineral particles that ranges from 2 millimeters to 3 inches in diameter. Fine gravel consists of particles that range from 2 millimeters to 0.05 inch in diameter.

Gray-Brown Podzolic soils. A great soil group consisting of soils that have a comparatively thin organic covering and organic-mineral layers over a grayish-brown leached layer that rests on an alluvial, brownish horizon. These soils developed under deciduous forests in temperate, moist climates.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes and that differs in one or more ways from adjacent horizons in the same profile.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Leaching, soil. The removal of soluble materials from soils or other materials by percolating water.

Loess. A fine-grained eolian deposit consisting dominantly of silt-sized particles.

Low-Humic Gley soils. A great soil group consisting of soils that have a weak A1 horizon over a mottled or partially gleyed mineral B horizon that is normally somewhat finer textured than the A horizon.

Morphology, soil. The makeup of the soil, including the texture, structure, consistence, color, and other physical, mineralogical, and biological properties of the various horizons of the soil profile.

Mottling, soil. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural drainage. Drainage that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets.

Permanent pasture. Pasture that is on the soil for a long time, in contrast to rotation pasture, which is on the soil only a year or two because it is grown in rotation with other crops.

Permeability. The quality of a soil horizon that enables water or air to move through it. Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Planosols. A great soil group consisting of soils that have strongly eluviated surface horizons underlain by a B horizon that is more strongly illuviated, cemented, or compacted than the B horizon of associated normal soils. Planosols developed in nearly flat upland areas under grass or forest vegetation in a humid or subhumid climate.

Productivity, soil. The present capability of a soil for producing a specified plant or sequence of plants under a specified system of management. It is measured in terms of output, or harvest, in relation to input of production for the specific kind of soil under a specified system of management.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction because it is neither acid nor alkaline. An acid, or "sour," soil is one that gives an acid reaction; an alkaline soil is one that is alkaline in reaction. In words, the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4 to 7.8
Very strongly acid	4.5 to 5.0	Moderately alkaline	7.9 to 8.4
Strongly acid	5.1 to 5.5	Strongly alkaline	8.5 to 9.0
Medium acid	5.6 to 6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1 to 6.5		
Neutral	6.6 to 7.3		

Red-Yellow Podzolic soils. A great soil group consisting of soils that have a thin, organic-mineral A1 horizon; a light-colored, bleached, leached A2 horizon; a finer textured, red to yellow B horizon that shows some accumulation of clay and sesquioxides; and a relatively sandy C horizon. These soils formed under deciduous, coniferous, or mixed forest in a humid, warm-temperate climate.

Regosols. A great soil group consisting of soils that developed from deep unconsolidated or soft rocky deposits.

Relief. The elevations or inequalities of a land surface, considered collectively.

Sand. Individual rock or mineral fragments in soils having diameters ranging from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of a soil that contains 85 percent or more sand and not more than 10 percent clay. See also Texture, soil.

Silt. Individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). Soil of the silt textural class is 80 percent or more silt and less than 12 percent clay. See also Texture, soil.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Substratum. Any layer lying beneath the solum, or true soil.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine." See also Clay, Sand, and Silt.

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Topsoil. A presumed fertile soil or soil material, ordinarily rich in organic matter, used to topdress roadbanks, lawns, and gardens.

Upland. Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

GUIDE TO MAPPING UNITS

[To obtain a full description of a mapping unit, read both the description of the mapping unit and the description of the soil series to which the mapping unit belongs.

See table 1, p. 7, for approximate acreage and proportionate extent of the soils and table 2, p. 33, for estimated yields per acre of the principal crops. For facts about the engineering properties of the soils, turn to the section beginning on p. 41, and for facts about recreational uses of the soils, see the section beginning on p. 51]

Map symbol	Mapping unit	Described on page	Capability unit		Woodland suitability group	
			Symbol	Page	Number	Page
Ac	Alligator clay	7	IIIw-4	29	5	37
Ad	Alligator clay, depressional	8	IVw-1	30	5	37
As	Alligator silty clay loam	8	IIIw-3	29	5	37
At	Alligator association	8	Vw-1	31	5	37
Ba	Borrow area	8	(1/)	--	(1/)	--
BtF	Boswell-Tippah complex, 17 to 40 percent slopes	8	VIIe-5	32	19	39
CaA	Calloway silt loam, 0 to 2 percent slopes 2/	9	IIw-4	27	10	38
CaB	Calloway silt loam, 2 to 5 percent slopes 2/	9	IIw-4	27	10	38
Cc	Cascilla silt loam	9	I-2	25	3	37
Cm	Collins silt loam	9	IIw-2 3/	26	3	37
Cn	Collins silt loam, local alluvium	10	I-2	25	3	37
CrF	Cuthbert-Ruston association, hilly	10	VIIe-4	32	25	41
CxE	Cuthbert-Ruston complex, 12 to 17 percent slopes	10	VIIe-4	32	24	41
CxE2	Cuthbert-Ruston complex, 12 to 17 percent slopes, eroded	11	VIIe-4	32	24	41
Db	Dubbs silty clay loam	11	IIw-5	28	6	37
DuB2	Dulac silt loam, 2 to 5 percent slopes, eroded	12	IIe-2	25	13	38
DuC2	Dulac silt loam, 5 to 8 percent slopes, eroded	12	IIIe-3	29	13	38
DuC3	Dulac silt loam, 5 to 8 percent slopes, severely eroded	12	IVe-2	30	11	38
Fc	Falaya-Collins association	12	IVw-2	31	7	37
Ff	Falaya silt loam	13	IIw-3	27	7	37
Fl	Falaya silt loam, local alluvium	13	IIw-3	27	7	37
Fo	Forestdale silty clay loam	13	IIIw-3	29	4	37
Gp	Gravel pits	13	(1/)	--	(1/)	--
GrA	Grenada silt loam, 0 to 2 percent slopes 2/	13	IIw-1	26	13	38
GrB2	Grenada silt loam, 2 to 5 percent slopes, eroded 2/	14	IIe-2	25	13	38
GrB3	Grenada silt loam, 2 to 5 percent slopes, severely eroded	14	IIIe-2	28	11	38
GrC2	Grenada silt loam, 5 to 8 percent slopes, eroded 2/	14	IIIe-3	29	13	38
GrC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded 2/	14	IVe-2	30	11	38
Gs	Gullied land, clayey	14	VIIe-2	32	16	38
Gt	Gullied land, sandy	15	VIIe-2	32	16	38
Gu	Gullied land, silty	15	VIIe-2	32	16	38
He	Henry silt loam 2/	15	IIIw-1	29	9	38
LoA	Loring silt loam, 0 to 2 percent slopes	15	I-1	25	1	36
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded	15	IIe-1	25	2	36
LoB3	Loring silt loam, 2 to 5 percent slopes, severely eroded	16	IIIe-1	28	8	37
LoC2	Loring silt loam, 5 to 8 percent slopes, eroded	16	IIIe-1	28	2	36
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded	16	IIIe-1	28	8	37
LoD2	Loring silt loam, 8 to 12 percent slopes, eroded	16	IVe-1	30	2	36
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded	16	IVe-1	30	8	37
MeA	Memphis silt loam, 0 to 2 percent slopes	16	I-1	25	1	36
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded	16	IIe-1	25	2	36
MeC3	Memphis silt loam, 5 to 8 percent slopes, severely eroded	17	IIIe-1	28	8	37
MeD3	Memphis silt loam, 8 to 12 percent slopes, severely eroded	17	IVe-1	30	8	37
MeE	Memphis silt loam, 12 to 17 percent slopes	17	VIe-1	31	1	36
MeE2	Memphis silt loam, 12 to 17 percent slopes, eroded	17	VIe-1	31	2	36
MeF	Memphis silt loam, 17 to 40 percent slopes	17	VIe-1	31	12	38
MeF3	Memphis silt loam, 17 to 50 percent slopes, severely eroded	17	VIIe-1	32	14	38
MgF	Memphis-Guin complex, 17 to 50 percent slopes	18	VIIe-6	32	22	40
Mx	Mixed alluvial land	18	IIIw-5	30	15	38
PaF	Providence-Loring association, hilly	18	VIIe-3	32	23	40
PcD2	Providence-Loring complex, 8 to 12 percent slopes, eroded	19	IVe-3	30	18	39
PcE	Providence-Loring complex, 12 to 17 percent slopes	19	VIe-2	31	18	39
PcE2	Providence-Loring complex, 12 to 17 percent slopes, eroded	20	VIe-2	31	18	39
PrC2	Providence silt loam, 5 to 8 percent slopes, eroded	18	IIIe-3	29	13	38
PrC3	Providence silt loam, 5 to 8 percent slopes, severely eroded	18	IVe-2	30	11	38
RcF	Ruston-Cuthbert association, hilly	20	VIIe-4	32	25	41
RpF	Ruston-Providence association, hilly	21	VIIe-3	32	21	39
RxE	Ruston-Providence complex, 12 to 17 percent slopes	21	VIe-3	31	20	39
RxE2	Ruston-Providence complex, 12 to 17 percent slopes, eroded	21	VIe-3	31	20	39
Sa	Sandy alluvial land	22	Vw-2	31	17	39
Sp	Sand pits	22	(1/)	--	(1/)	--
TbD	Tippah-Boswell complex, 8 to 12 percent slopes	22	VIe-4	32	19	39
TbD2	Tippah-Boswell complex, 8 to 12 percent slopes, eroded	22	VIe-4	32	19	39
TbE	Tippah-Boswell complex, 12 to 17 percent slopes	23	VIe-4	32	19	39
TbE2	Tippah-Boswell complex, 12 to 17 percent slopes, eroded	23	VIe-4 3/	32	19	39
Vb	Vicksburg silt loam	23	IIw-2 3/	26	3	37
Vc	Vicksburg silt loam, local alluvium	23	I-2	25	3	37
Wf	Waverly-Falaya association	24	IVw-3	31	7	37
Ws	Waverly silt loam	24	IIIw-2	29	7	37

1/ Not placed in a capability unit or woodland group.

2/ Further study, after the mapping in Calhoun County, has shown that the soils on stream terraces along the Yalobusha River are more like soils derived from loess than they are like those derived from material of the Coastal Plain. Soils of the Calloway series in this county are essentially the same as those mapped as Hatchie in Calhoun County; those of the Grenada series are essentially the same as the Freeland; and those of the Henry series are essentially the same as the Almo.

3/ This soil is in capability unit I-2 in areas protected by diversions and major structures for flood control.

217-013 O - 67 - (Face p. 70)

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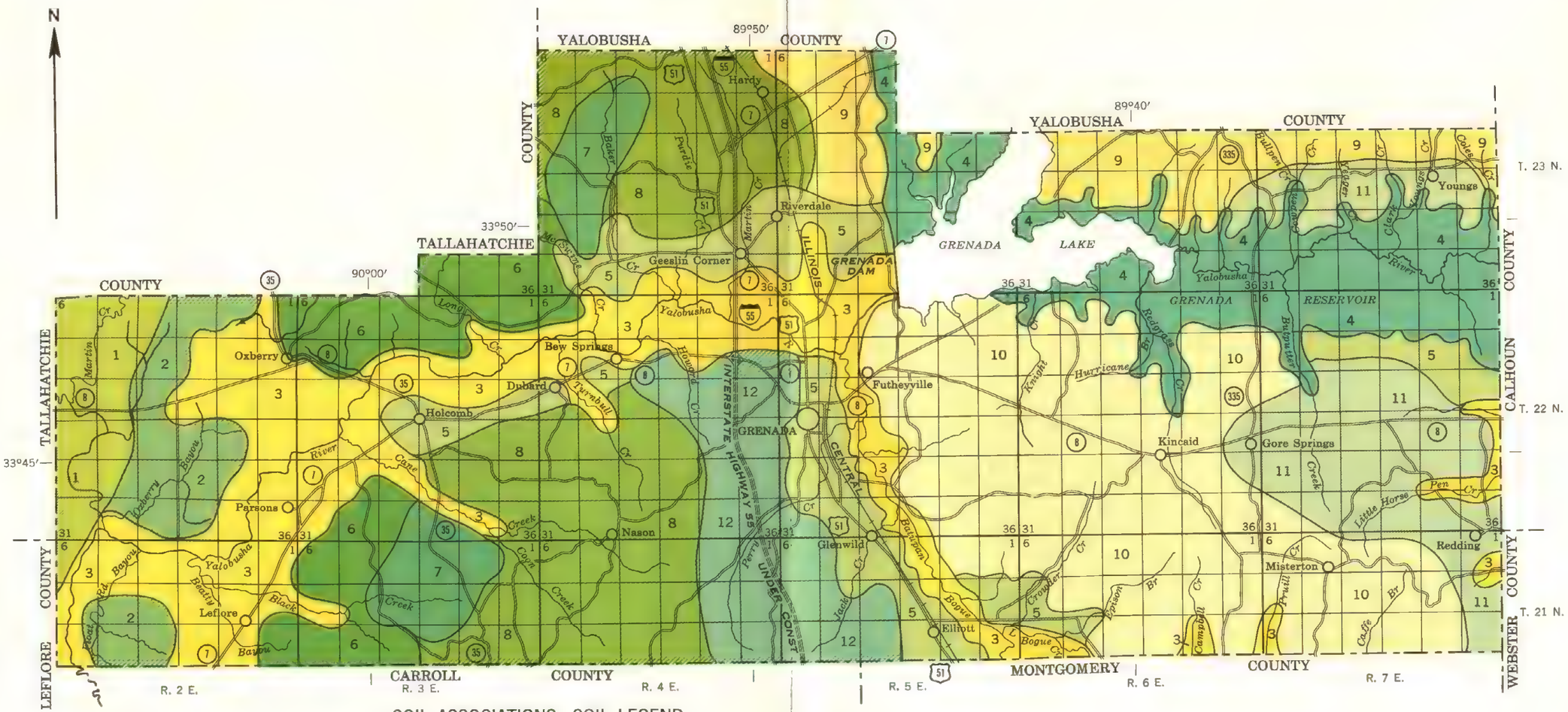


SOIL ASSOCIATIONS SOIL LEGEND

FLOOD PLAINS

1. Alligator-Forestdale association: Poorly drained fine-textured soils formed in old alluvium from the Mississippi River
2. Waverly-Falaya-Collins association: Poorly drained to moderately well drained soils formed in recent alluvium from the Yalobusha River
3. Falaya-Collins-Waverly association: Well drained to poorly drained silty soils formed in recent alluvium from the Yalobusha River and other streams
4. Falaya-Calloway association: Somewhat poorly drained silty soils subject to flooding from backwaters of Grenada Lake

UPLANDS

5. Grenada-Calloway association: Silty soils that have a fragipan and border flood plains mainly of the Yalobusha River
6. Memphis association: Silty soils on hilly uplands
7. Memphis-Guin association: Silty and gravelly soils on hilly uplands
8. Memphis-Loring association: Silty soils on rolling to steep uplands
9. Ruston-Providence association: Sandy and silty soils on hilly uplands
10. Ruston-Cuthbert-Providence association: Sandy, clayey, and silty soils on hilly uplands
11. Tippah-Boswell-Dulac association: Silty and clayey soils on hilly uplands
12. Providence-Loring-Ruston association: Silty and sandy soils on hilly uplands

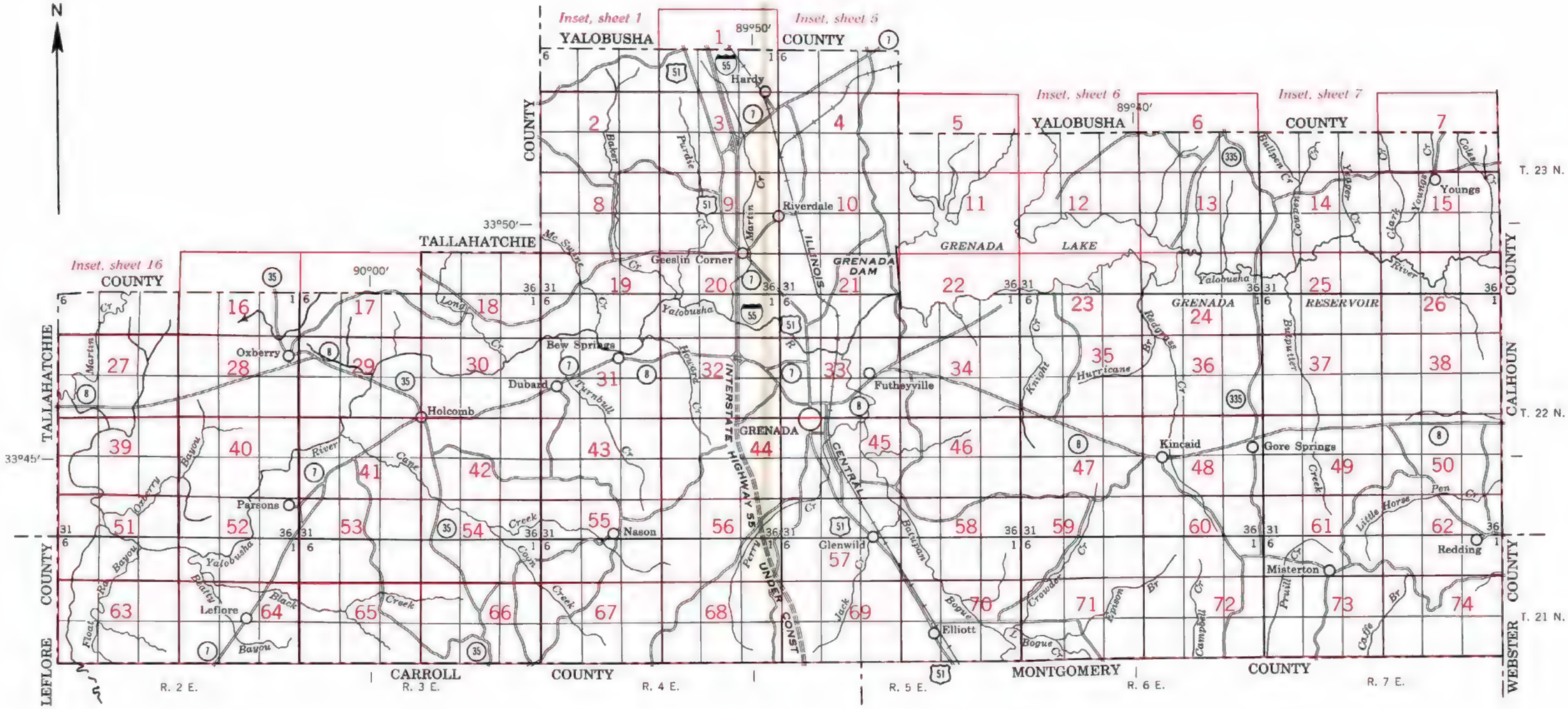
February 1966

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSISSIPPI AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
GRENADA COUNTY, MISSISSIPPI

Scale 1:190,080

1 0 1 2 3 4 Miles



INDEX TO MAP SHEETS

GRENADA COUNTY, MISSISSIPPI

Scale 1:190,080

1 0 1 2 3 4 Miles

SOIL LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, D, E, or F, shows the slope. Symbols for nearly level soils, such as Alligator clay, do not contain a slope letter. Neither does the symbol for a land type that has considerable range in slope—Gullied land, sandy. The number, 2 or 3, in a symbol indicates that the soil is eroded or severely eroded.

SYMBOL	NAME
Ac	Alligator clay
Ad	Alligator clay, depressional
As	Alligator silty clay loam
At	Alligator association
Bn	Borrow area
BtF	Boswell—Tippah complex, 17 to 40 percent slopes
CnA	Calloway silt loam, 0 to 2 percent slopes
CnB	Calloway silt loam, 2 to 5 percent slopes
Cc	Cascilla silt loam
Cm	Collins silt loam
Co	Collins silt loam, local alluvium
CrF	Cuthbert—Ruston association, hilly
CxE	Cuthbert—Ruston complex, 12 to 17 percent slopes
CxE2	Cuthbert—Ruston complex, 12 to 17 percent slopes, eroded
Db	Dubbs silty clay loam
DuB2	Dulac silt loam, 2 to 5 percent slopes, eroded
DuC2	Dulac silt loam, 5 to 8 percent slopes, eroded
DuC3	Dulac silt loam, 5 to 8 percent slopes, severely eroded
Fc	Falaya—Collins association
Ff	Falaya silt loam
Fl	Falaya silt loam, local alluvium
Fo	Forestdale silty clay loam
gp	Gravel pits
GrA	Grenada silt loam, 0 to 2 percent slopes
GrB2	Grenada silt loam, 2 to 5 percent slopes, eroded
GrB3	Grenada silt loam, 2 to 5 percent slopes, severely eroded
GrC2	Grenada silt loam, 5 to 8 percent slopes, eroded
GrC3	Grenada silt loam, 5 to 8 percent slopes, severely eroded
Gs	Gullied land, clayey
Gt	Gullied land, sandy
Gu	Gullied land, silty
Hn	Henry silt loam
LoA	Loring silt loam, 0 to 2 percent slopes
LoB2	Loring silt loam, 2 to 5 percent slopes, eroded
LoB3	Loring silt loam, 2 to 5 percent slopes, severely eroded
LoC2	Loring silt loam, 5 to 8 percent slopes, eroded
LoC3	Loring silt loam, 5 to 8 percent slopes, severely eroded
LoD2	Loring silt loam, 8 to 12 percent slopes, eroded
LoD3	Loring silt loam, 8 to 12 percent slopes, severely eroded
MeA	Memphis silt loam, 0 to 2 percent slopes
MeB2	Memphis silt loam, 2 to 5 percent slopes, eroded
MeB3	Memphis silt loam, 5 to 8 percent slopes, severely eroded
MeC3	Memphis silt loam, 8 to 12 percent slopes, severely eroded
MeE	Memphis silt loam, 12 to 17 percent slopes
MeE2	Memphis silt loam, 12 to 17 percent slopes, eroded
MeF	Memphis silt loam, 17 to 40 percent slopes
MeF3	Memphis silt loam, 17 to 50 percent slopes, severely eroded
MgF	Memphis—Guin complex, 17 to 50 percent slopes
Ml	Mixed alluvial land
PcE	Providence—Loring association, hilly
PcE2	Providence—Loring complex, 8 to 12 percent slopes, eroded
PeE	Providence—Loring complex, 12 to 17 percent slopes
PrE2	Providence—Loring complex, 12 to 17 percent slopes, eroded
PrC2	Providence silt loam, 5 to 8 percent slopes, eroded
PrC3	Providence silt loam, 5 to 8 percent slopes, severely eroded
RcF	Ruston—Cuthbert association, hilly
RpF	Ruston—Providence association, hilly
RxE	Ruston—Providence complex, 12 to 17 percent slopes
RxE2	Ruston—Providence complex, 12 to 17 percent slopes, eroded
Sa	Sandy alluvial land
Se	Sand pits
TbE	Tippah—Boswell complex, 8 to 12 percent slopes
TbE2	Tippah—Boswell complex, 8 to 12 percent slopes, eroded
TtE	Tippah—Boswell complex, 12 to 17 percent slopes
TtE2	Tippah—Boswell complex, 12 to 17 percent slopes, eroded
Vc	Vicksburg silt loam
Vl	Vicksburg silt loam, local alluvium
Wt	Waverly—Falaya association
We	Waverly silt loam

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferries
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings
- School
- Church

Indian mound

Mines and Quarries
- Mine dump
- Pits, gravel or other

Power lines

Pipe lines

Cemeteries

Dams

Levees

Tanks

Oil wells

BOUNDARIES

- National or state
- County
- Township, U. S.
- Section line, corner
- Reservation
- Land grant

DRAINAGE

Streams
- Perennial
- Intermittent, unclass
- Crossable with tillage implements

Canals and ditches (CANAL / DITCH)

Lakes and ponds
- Perennial
- Intermittent

Wells (flowing)

Springs

Marsh

Wet spot

Alluvial fan

Drainage ends

RELIEF

Escarpments
- Bedrock
- Other

Prominent peaks

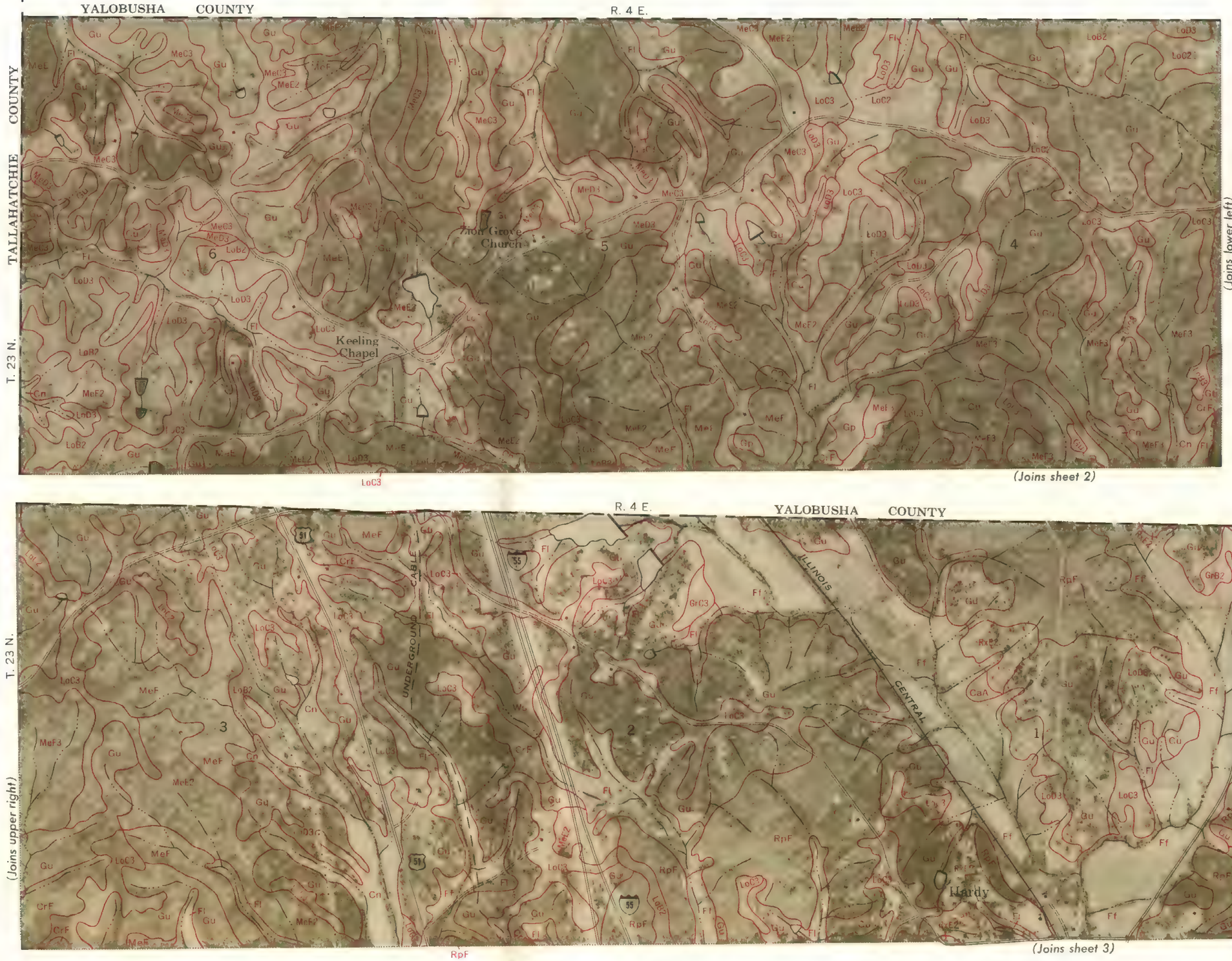
Depressions

	Large	Small
Crossable with tillage implements		
Not crossable with tillage implements		
Contains water most of the time		

SOIL SURVEY DATA

- Soil boundary and symbol (Dx)
- Gravel
- Stones
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gullies

Soil map constructed 1965 by Cartographic Division, Soil Conservation Service, USDA, from 1963 aerial photographs. Controlled mosaic based on Mississippi plane coordinate system, west zone, transverse Mercator projection, 1927 North American datum.



0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

(2)

N

(Joins inset, sheet 1)

R. 4 E.

TALLAHATCHIE COUNTY

T. 23 N.

(Joins sheet 8)

(Joins sheet 3)

0 ½ Mile Scale 1:15 840 0 3000 Feet

Range, township, and section corners shown on this map are indefinite.

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins inset, sheet 5)

R. 5 E.

(Joins sheet 3)

(Joins sheet 5)

(Joins sheet 10)

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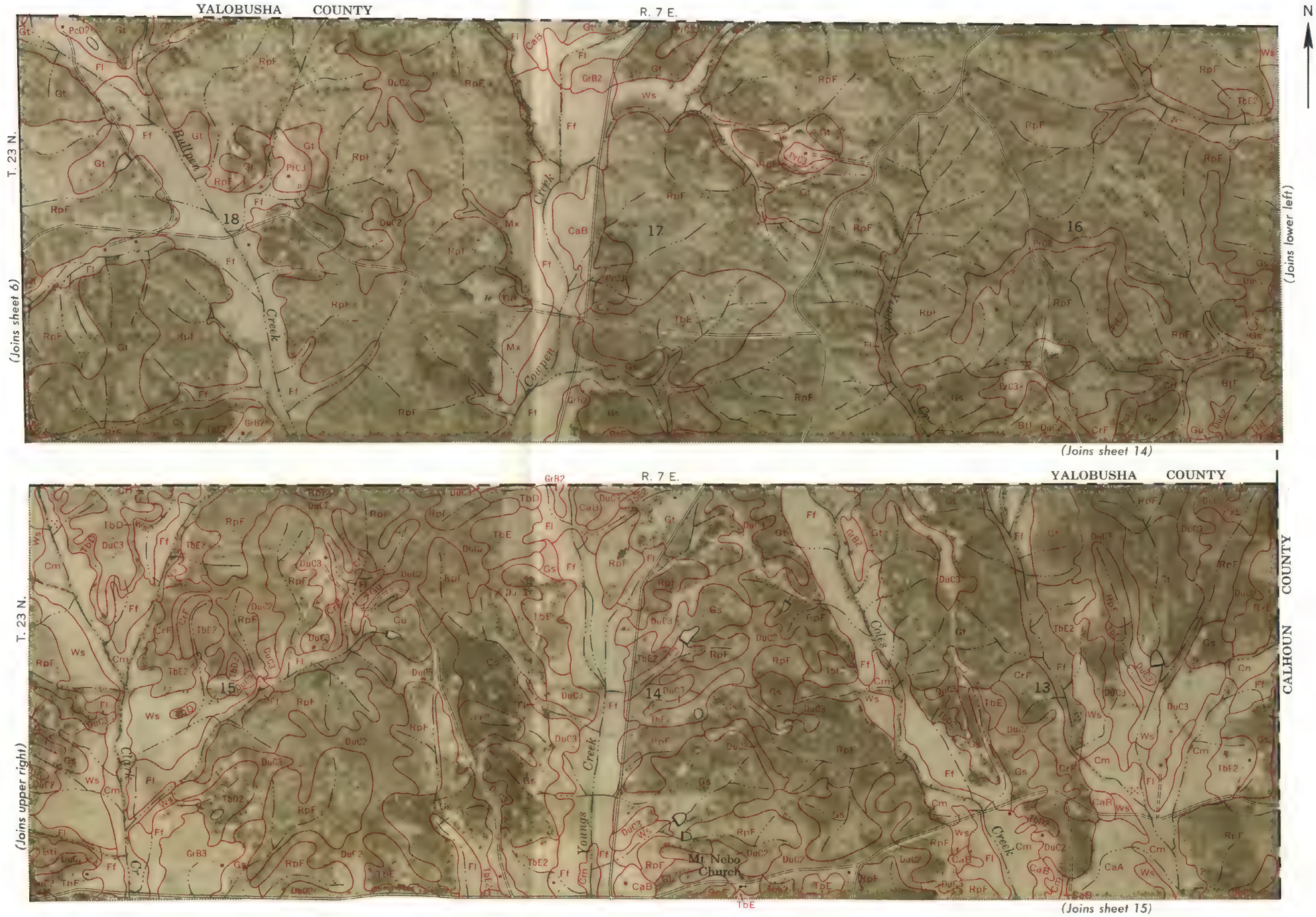
N
YALOBUSHA COUNTY
R. 6 E.
GRENADA LAKE
LAND SUBJECT TO INUNDATION
SURVEY
GRENADA RESERVOIR
LIMIT
LAND SUBJECT TO INUNDATION
17
16
15
14
13
T. 23 N.
(Joins sheet 5)
(Joins lower left)
(Joins upper right)
(Joins sheet 7)
(Joins sheet 12)
(Joins sheet 13)
RESERVOIR BOUNDARY
0
½ Mile
Scale 1:15 840
0
3000 Feet



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8

N

(Joins sheet 2)

R. 4 E.

TALLAHATCHIE COUNTY

T. 23 N.

(Joins sheet 19)

(Joins sheet 9)

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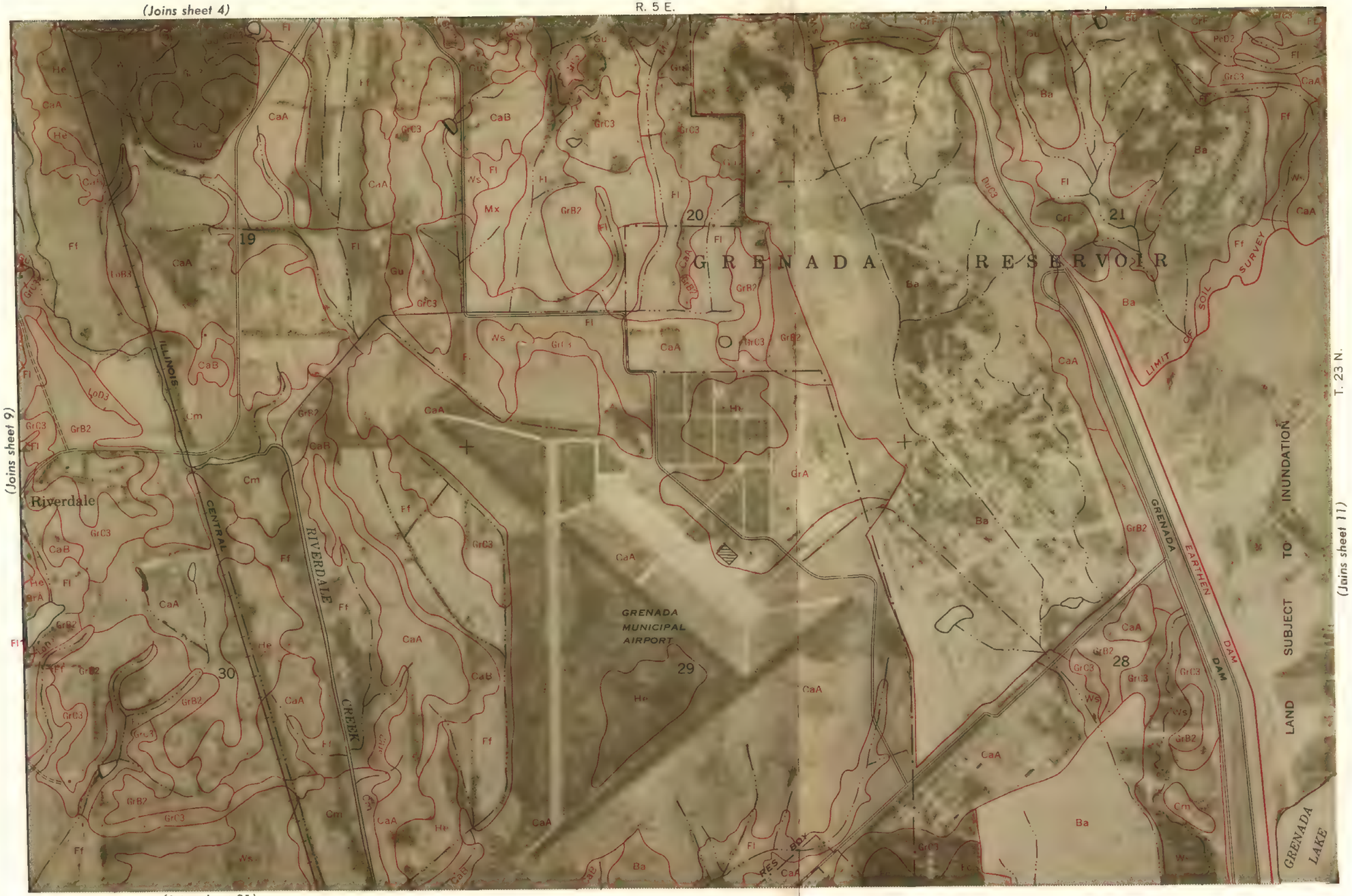
0 ½ Mile Scale 1:15 840 0 3000 Feet

(10)

N



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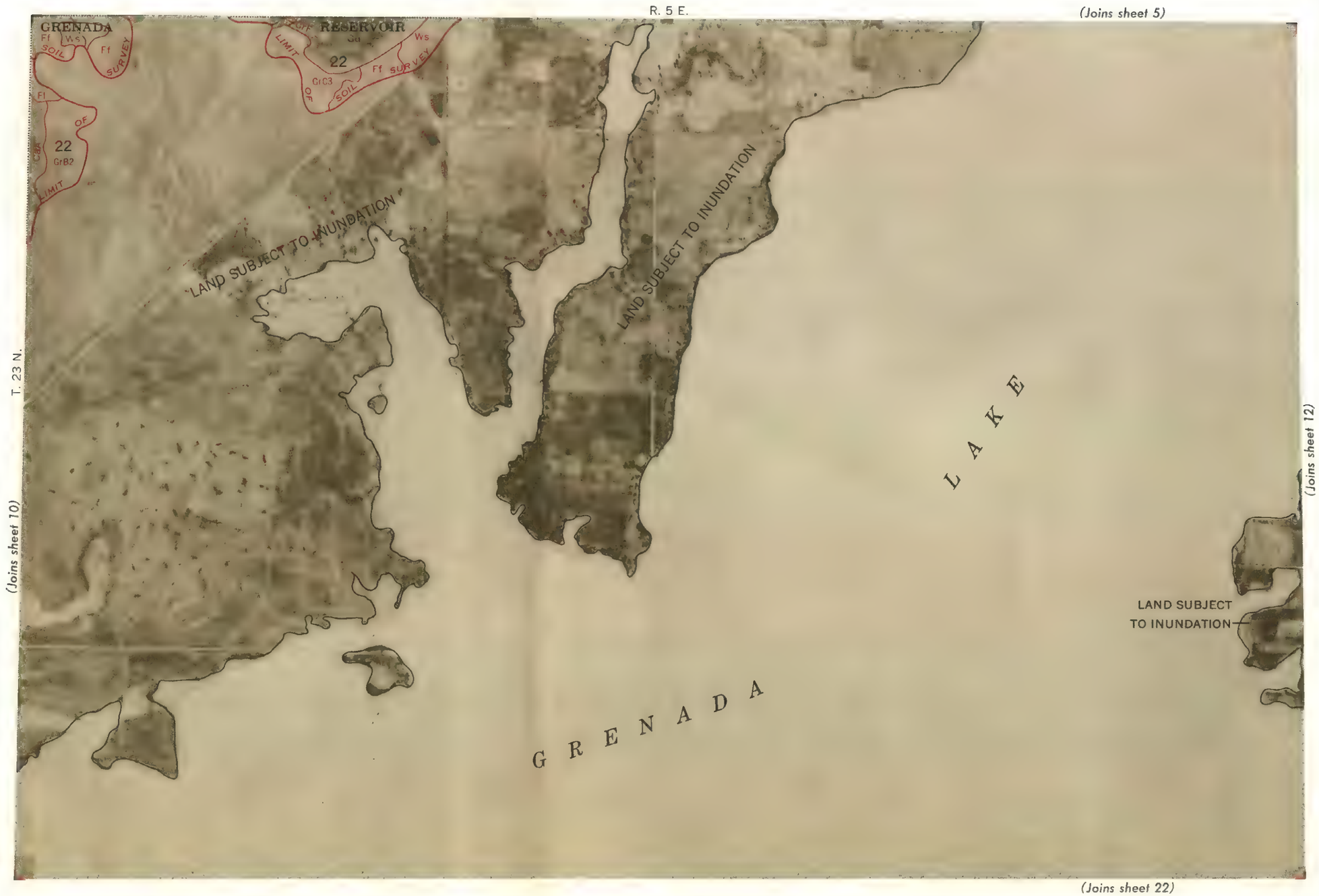
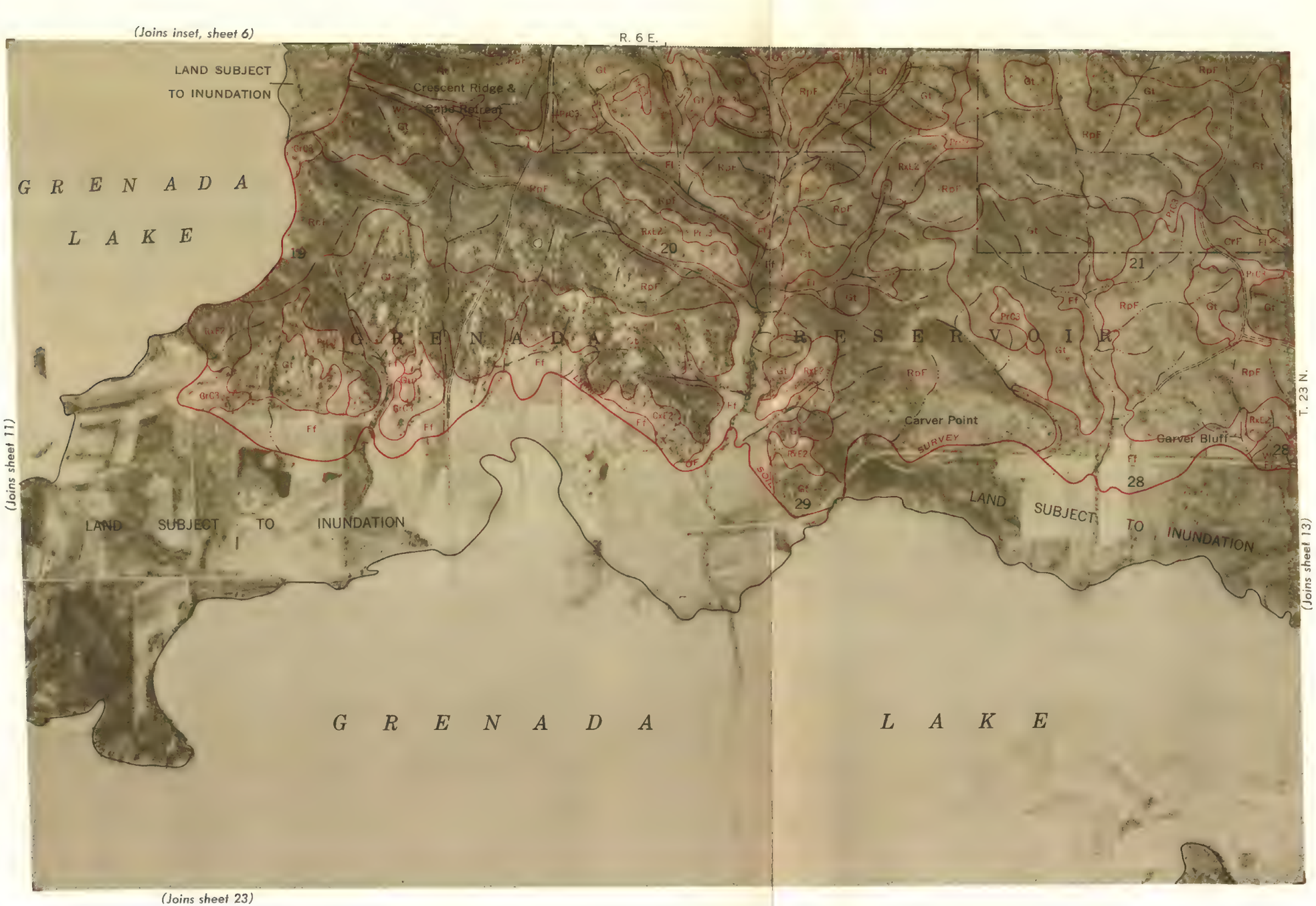


0 ½ Mile Scale 1:15 840 0 3000 Feet


N
(Joins inset, sheet 6)
R. 6 E.
LAND SUBJECT TO INUNDATION
Crescent Ridge & Cape Retreat
GRENADA LAKE
19
20
21
GRENADA RESERVOIR
Carver Point
SURVEY
Carver Bluff
28
29
T. 23 N.
LAND SUBJECT TO INUNDATION
LAND SUBJECT TO INUNDATION
GRENADA LAKE
(Joins sheet 11)
(Joins sheet 13)
(Joins sheet 23)
0 ½ Mile
Scale 1:15 840
0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

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N

R. 6 E.

T. 23 N.

(Joins sheet 6)

(Joins sheet 12)

(Joins sheet 14)

(Joins sheet 24)

GRENADA RESERVOIR

GRENADA LAKE

Choctaw Landing

LAND SUBJECT TO INUNDATION

LAND SUBJECT TO INUNDATION

Scale 1:15 840

0 ½ Mile

0 3000 Feet

N

(Joins inset, sheet 7)

R. 7 E.

T. 23 N.

(Joins sheet 13)

(Joins sheet 15)

(Joins sheet 25)

Bullpen Creek

Cowan Creek

Yeager Creek

YALOBUSHA RIVER

GRENADA RESERVOIR

19 20 21 28 29 30

335

LAND SUBJECT TO INUNDATION

LIMIT OF SOIL SURVEY

Gs GrB2 TbE2 RpF BtF Fl Ff Gt Ws Gu TbE PuD2 DuC2 DuC3 DuF2 TbD2 GrC3 CaA TbF CaB GrA Ba Of Fc Cm Crf TbD

0 ½ Mile

Scale 1:15 840

0 3000 Feet

0 ½ Mile Scale 1:15 840 0 3000 Feet

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R. 2 E.

TALLAHATCHIE COUNTY

N

TALLAHATCHIE COUNTY

T. 22 N.

(Joins lower left)

(Joins sheet 27)

(Joins upper right)

T. 21 N.

(Joins sheet 17)

(Joins sheet 28)

0 ½ Mile

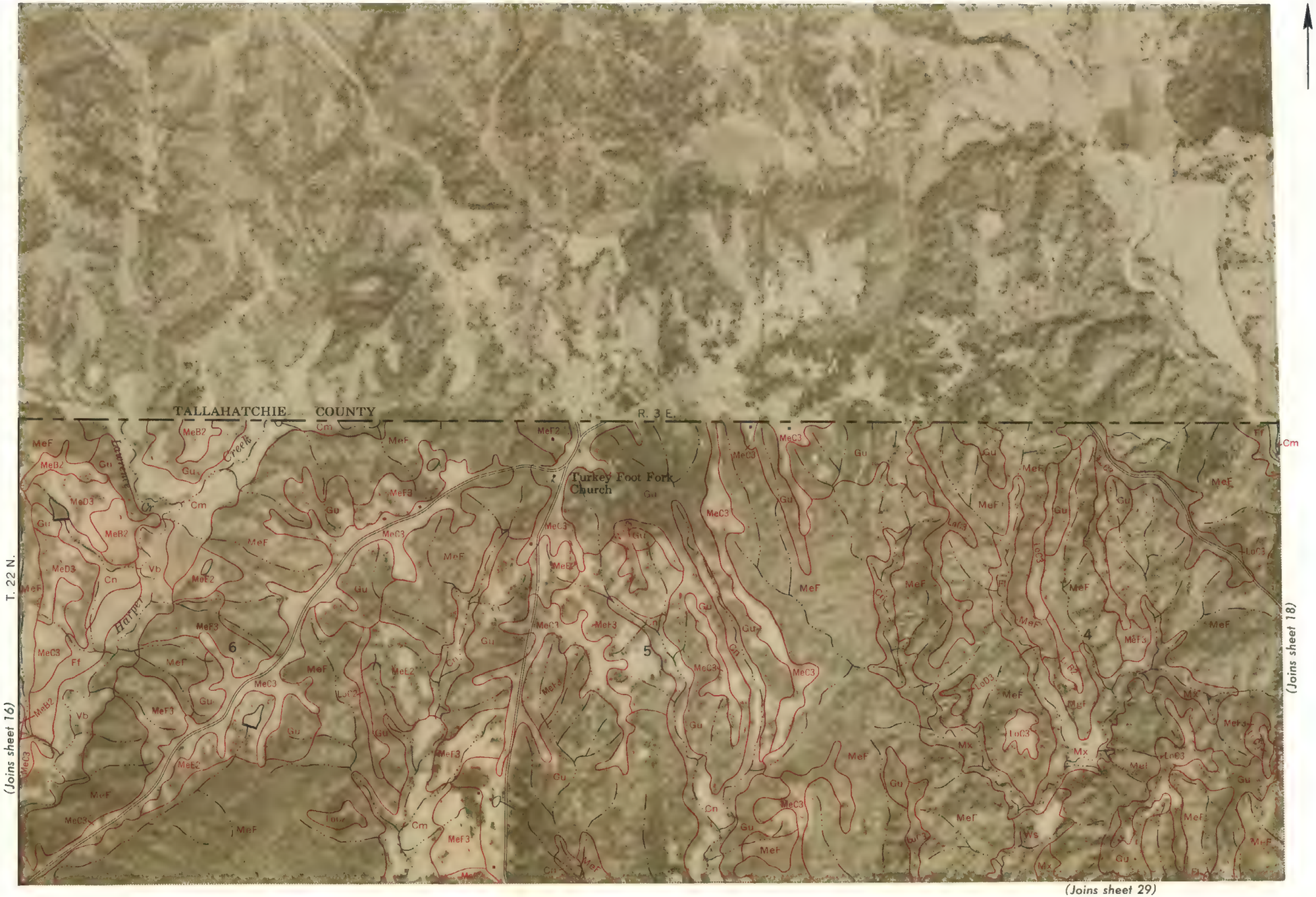
Scale 1:15 840

0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station

Range, township, and section corners shown on this map are indefinite.

N



0 ½ Mile Scale 1:15 840 0 3000 Feet

(18)

N

R. 3 E.

TALLAHATCHIE COUNTY

TALLAHATCHIE COUNTY

LONG CREEK

RATTLESNAKE CR

LONG CREEK

Jackson Chapel

34

35

36

1

2

3

T. 23 N.

T. 22 N.

(Joins sheet 17)

(Joins sheet 19)

(Joins sheet 30)

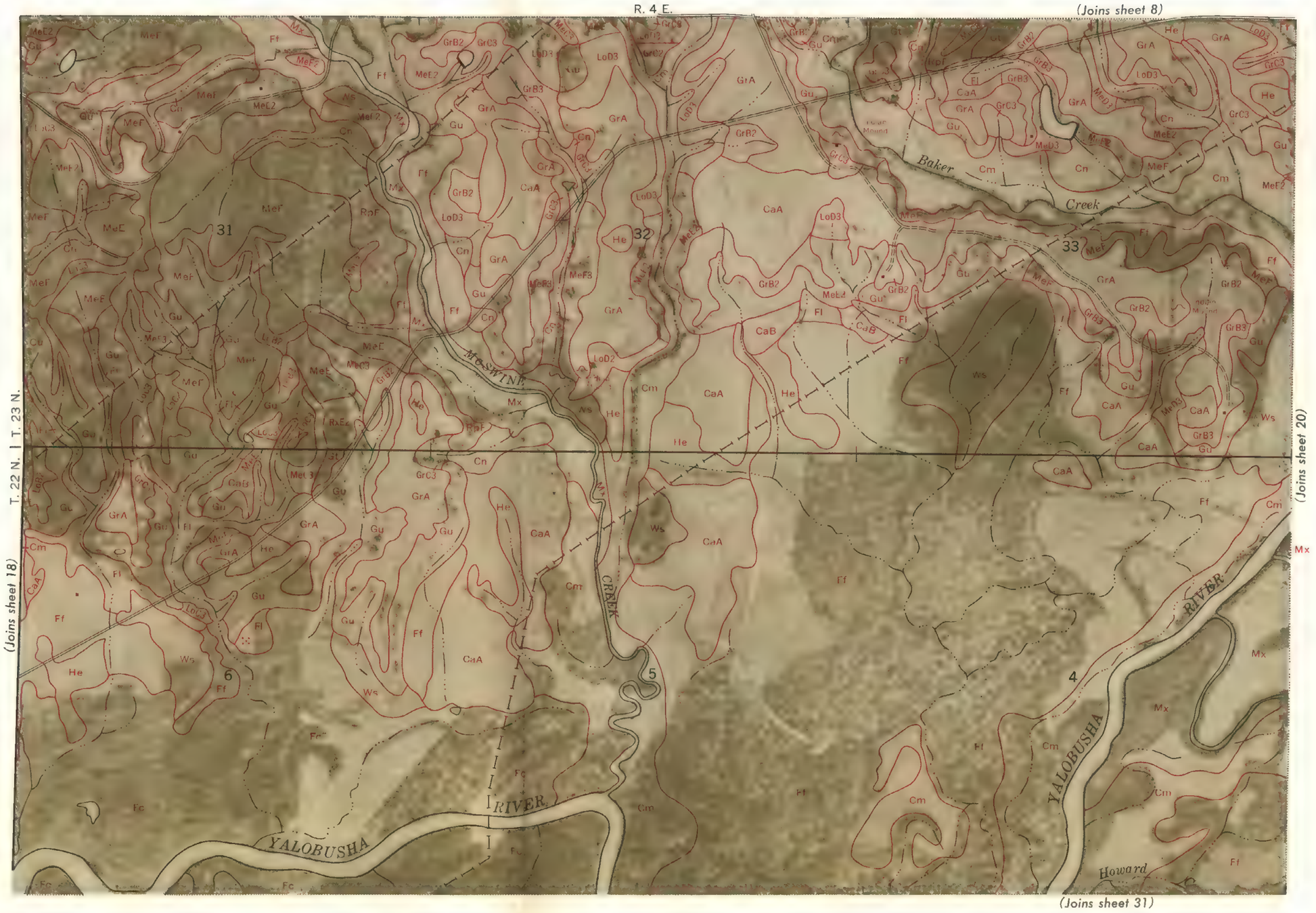
0 ½ Mile

Scale 1:15 840

0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



0 ½ Mile Scale 1:15 840 0 3000 Feet

N

R. 4 E.

(Joins sheet 9)

(Joins sheet 19)

(Joins sheet 32)

(Joins sheet 21)

T. 22 N. | T. 23 N.

Jones Chapel

Geeslin Corner

Butler Creek

Purdie Creek

Martin Creek

Dement Creek

YALOBUSHA RIVER

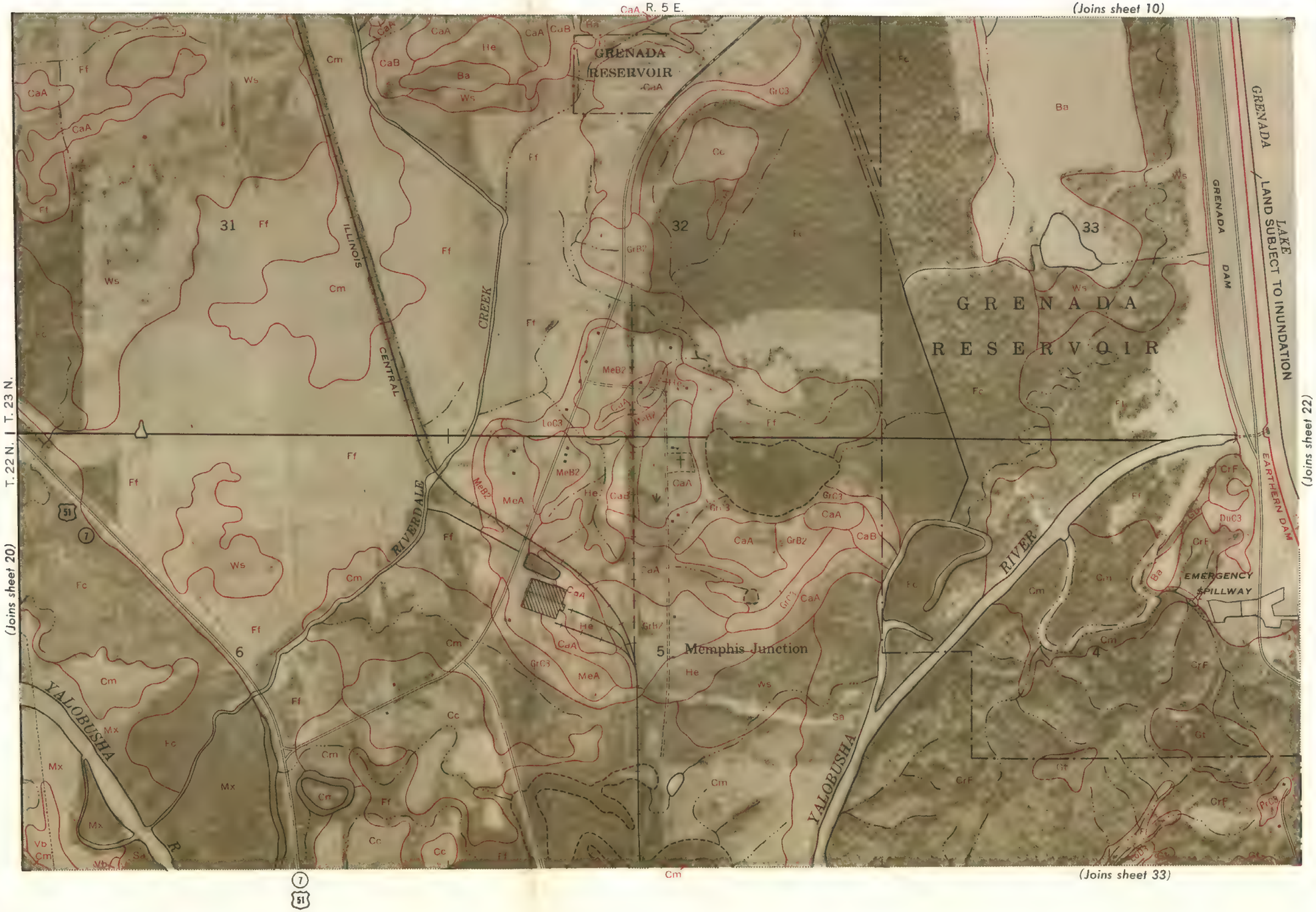
CABLE UNDERGROUND

34 35 36 3 2 1

0 ½ Mile

Scale 1:15 840

0 3000 Feet



This map is one of a set compiled in 1955 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

N

R. 5 E.

(Joins sheet 11)

(Joins sheet 21)

G R E N A D A

L A K E

LAND SUBJECT TO INUNDATION

Hugh White State Park

LAND SUBJECT TO INUNDATION

Cedar Point

LAND SUBJECT TO INUNDATION

Wolf Creek Landing

LAND SUBJECT TO INUNDATION

Beach

Grenada Yacht Basin

G R E N A D A R E S E R V O I R

36

1

2

3

T. 22 N. | T. 23 N.

(Joins sheet 23)

(Joins sheet 34)

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

R. 6 E.

(Joins sheet 12)

N

G R E N A D A L A K E

LAND SUBJECT TO INUNDATION

LAND SUBJECT TO INUNDATION

LAND SUBJECT TO INUNDATION

LAND SUBJECT TO INUNDATION

T. 22 N. | T. 23 N.

Pinewood Landing

G R E N A D A R E S E R V O I R

(Joins sheet 22)

(Joins sheet 24)

(Joins sheet 35)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 13)

R. 6 E.

GRENADA LAKE

LAND SUBJECT TO INUNDATION

GRAYSPORT CROSSING

335

34

35

36

3

2

1

SOIL SURVEY LIMIT

GrC3 GrB2 CaA Fl Ff Gu He Ra Ws Gt Cm Cr Sp CxE CxE2 DuC3

G R E N A D A R E S E R V O I R

Redgrass Cr.

(Joins sheet 23)

(Joins sheet 25)

T. 22 N. | T. 23 N.

(Joins sheet 36)

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

N

R. 7 E.

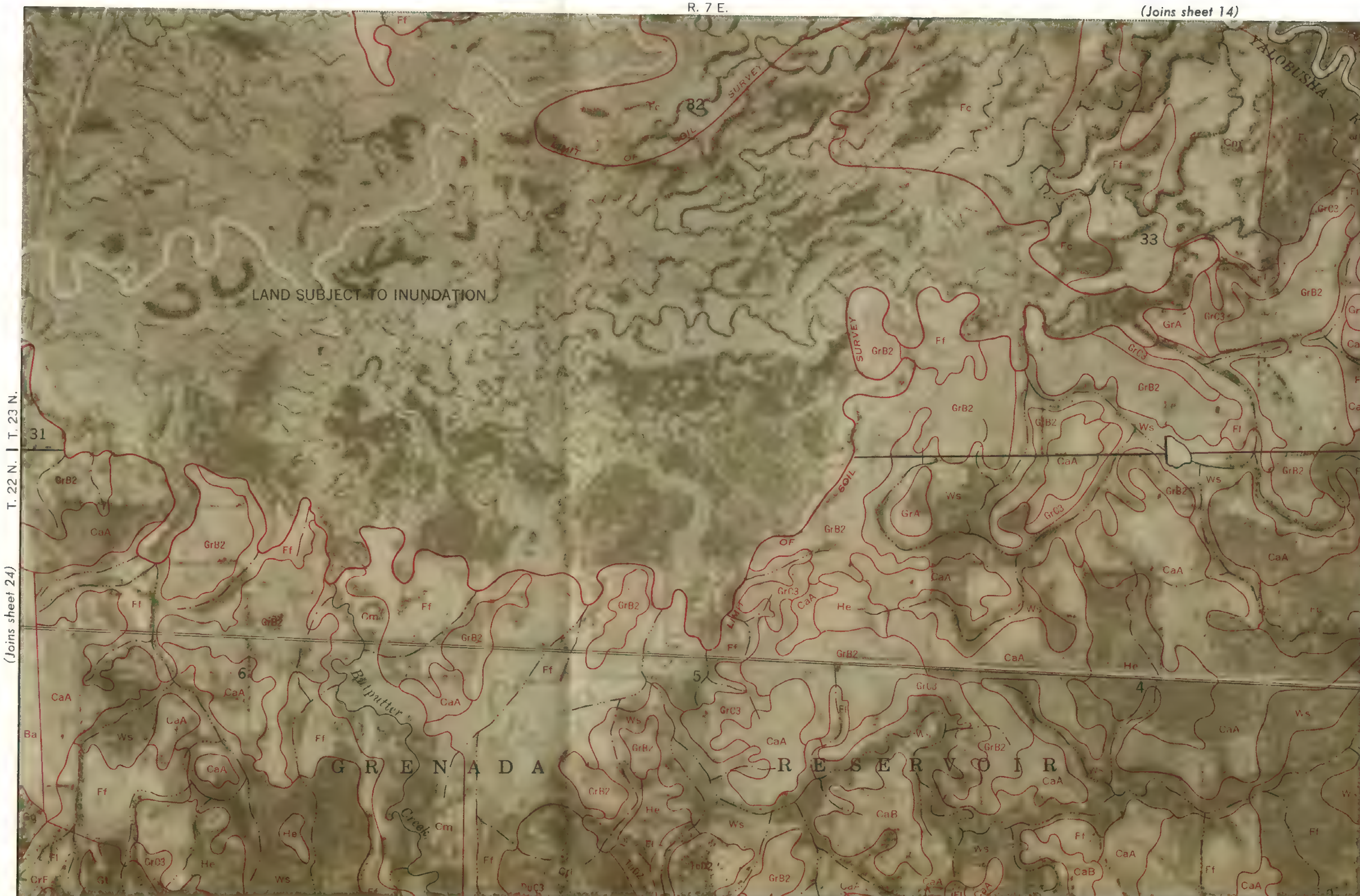
(Joins sheet 14)

(Joins sheet 24)

(Joins sheet 26)

T. 23 N.

T. 22 N.



(Joins sheet 37)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 15)

R. 7 E.

(Joins sheet 25)

(Joins sheet 38)

T. 22 N. | T. 23 N.

CALHOUN COUNTY

0 ½ Mile Scale 1:15 840 0 3000 Feet

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Range, township, and section corners shown on this map are indefinite

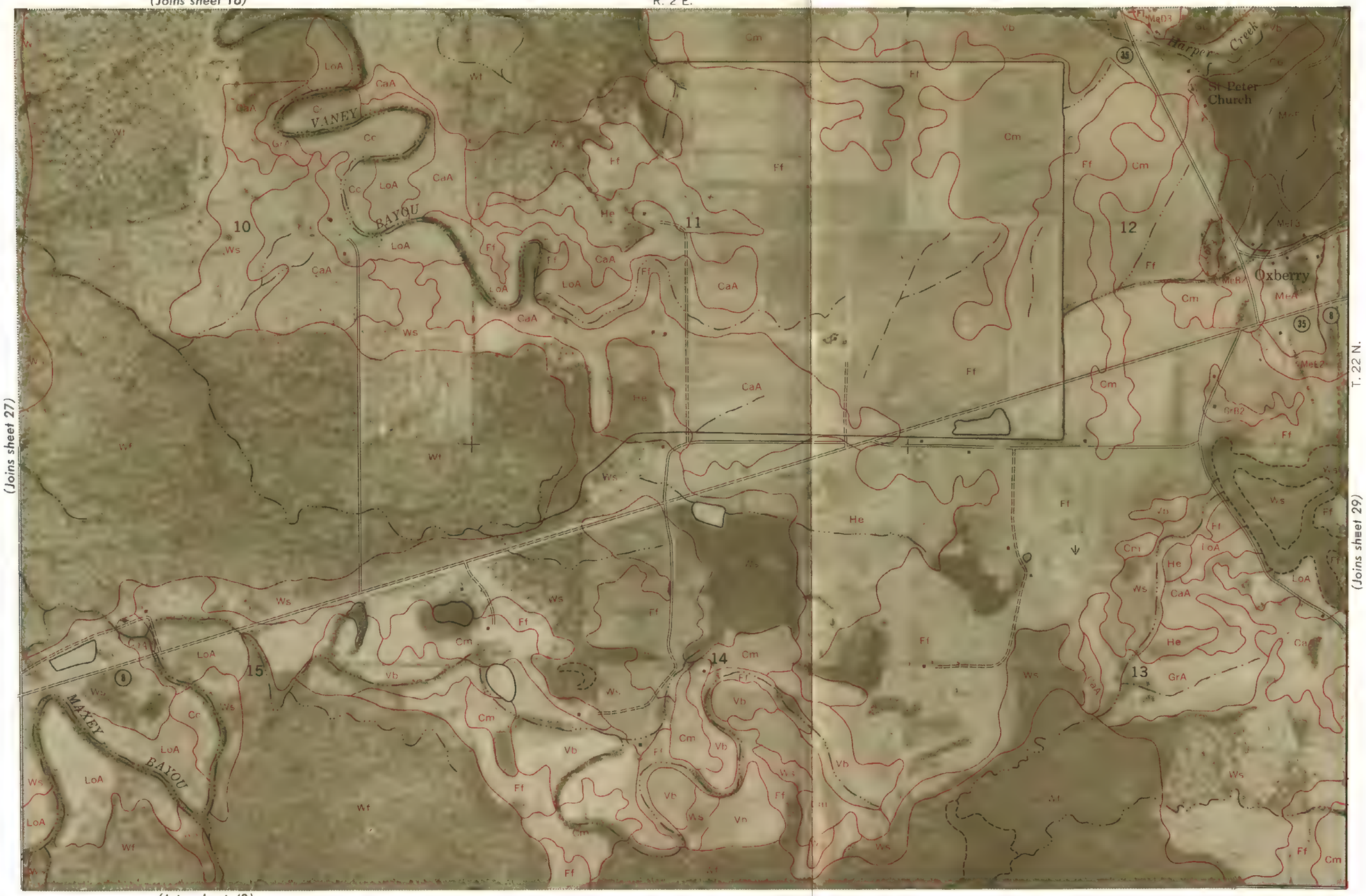
0 ½ Mile Scale 1:15 840 0 3000 Feet

28

N

(Joins sheet 16)

R. 2 E.



(Joins sheet 27)

(Joins sheet 29)

T. 22 N.

(Joins sheet 40)

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

N

(Joins sheet 18)

R. 3 E.

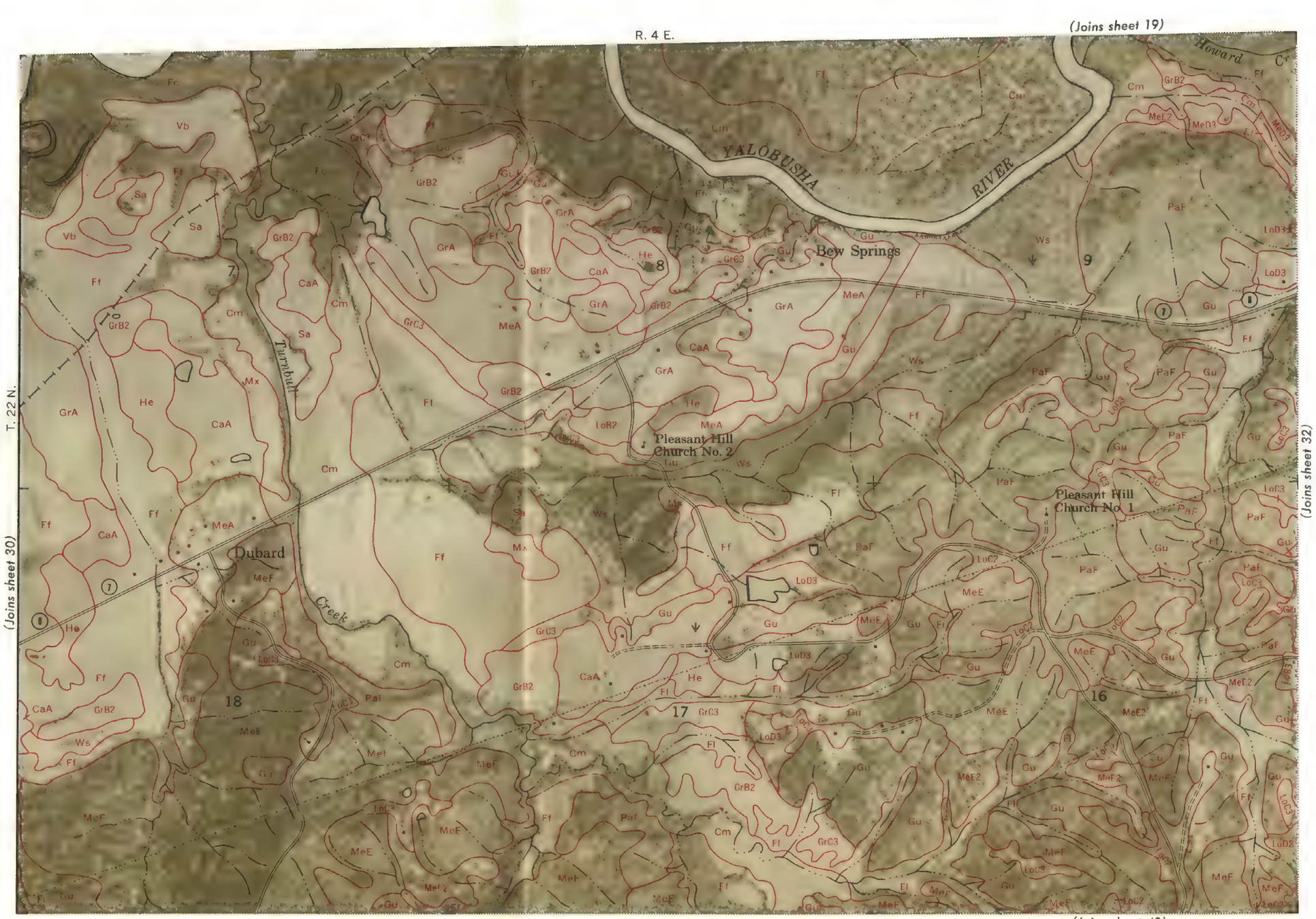
(Joins sheet 29)

(Joins sheet 31)

T. 22 N.

(35) (Joins sheet 42)

0 ½ Mile Scale 1:15 840 0 3000 Feet



0 ½ Mile Scale 1:15 840 0 3000 Feet

(32)

N

(Joins sheet 20)

R. 4 E.

T. 22 N.

(Joins sheet 31)

(Joins sheet 33)

(Joins sheet 44)

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

N


Gu (Joins sheet 22)
R. 5 E.
T. 22 N.
GRENADA
LAND SUBJECT TO INUNDATION
RESERVOIR
Gibbs Creek
Knight Creek
Hebron Church
10
11
12
13
14
15
(Joins sheet 33)
(Joins sheet 35)
(Joins sheet 46)
Gt
CrF
RcF
Ff
Fl
Gu
GrC3
DuC3
TbL2
TbD2
CaA
PcD2
RpF
RxE2
CxE2
TbE2
DuC2
TbD
0
½ Mile
Scale 1:15 840
0
3000 Feet

Range, township, and section corners shown on this map are indefinite.

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

N

(Joins sheet 26)

R. 7 E.

G R E N A D A R E S E R V O I R

(Joins sheet 37)

T. 22 N.

CALHOUN COUNTY

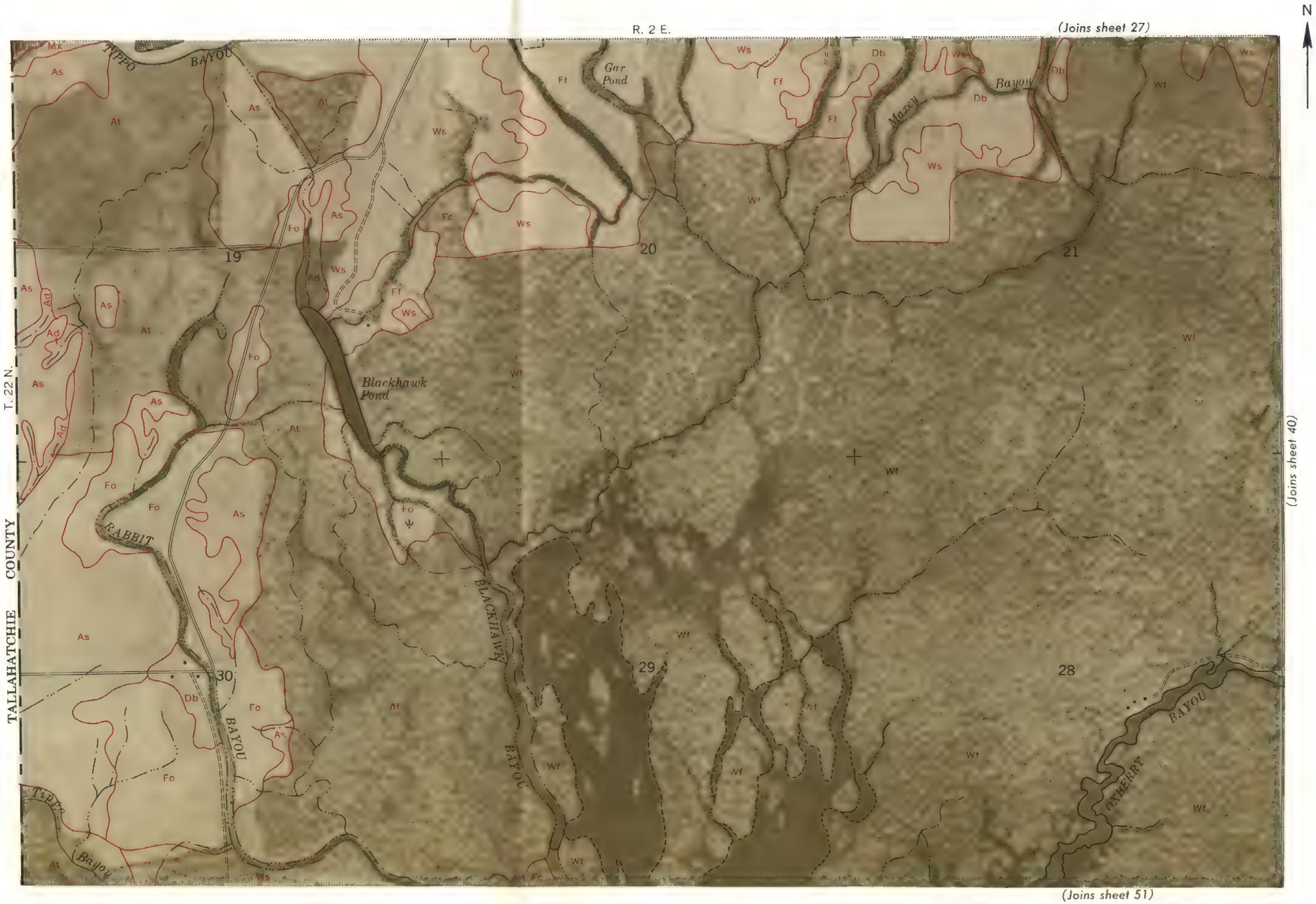
RESERVOIR BOUNDARY

Little Rock Church

10 11 12 13 14 15

(Joins sheet 50)

0 ½ Mile Scale 1:15 840 0 3000 Feet



0 ½ Mile Scale 1:15 840 0 3000 Feet

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Range, township, and section corners shown on this map are indefinite.

N

(Joins sheet 28)

R. 2 E.

(Joins sheet 39)

(Joins sheet 41)

T. 22 N.

(Joins sheet 52)

22 23 24 25 26 27

Jacklot Lake

Terrill Lake

Minter Lake

YALOBUSHA RIVER

OXBERRY BAYOU

Wf Ws Ff Cm Fc Mx Sa

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

42

N

R. 3 E.

T. 22 N.

(Joins sheet 30)

(Joins sheet 41)

(Joins sheet 43)

(Joins sheet 54)

HOLCOMB

Prospect Church

Canne Creek

22 23 24 25 26 27

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

N

R. 4 E.

(Joins sheet 31)

T. 22 N.

(Joins sheet 42)

(Joins sheet 44)

(Joins sheet 55)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 32)

R. 4 E.

T. 22 N.

(Joins sheet 43)

(Joins sheet 45)

(Joins sheet 56)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 36)

R. 6 E.

(Joins sheet 47)

(Joins sheet 49)

(Joins sheet 60)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

R. 7 E.

(Joins sheet 37)

T. 22 N.

(Joins sheet 48)

(Joins sheet 50)

(Joins sheet 61)

Butputter Creek

19 20 21 30 29 28

Range, township, and section corners shown on this map are indefinite.

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 38)

R. 7 E.

(Joins sheet 49)

(Joins sheet 62)

Pleasant Grove Church

Horse Pen Cr.

Little Horse Pen Creek

RESERVOIR BOUNDARY

T. 22 N.

CALHOUN COUNTY

22 23 24 25 26 27

0 ½ Mile Scale 1:15 840 0 3000 Feet

Range, township, and section corners shown on this map are indefinite.

R. 2 E.

(Joins sheet 39)

N

T. 22 N.

TALLAHATCHIE COUNTY

LEFLORE COUNTY

T. 21 N.

(Joins sheet 52)

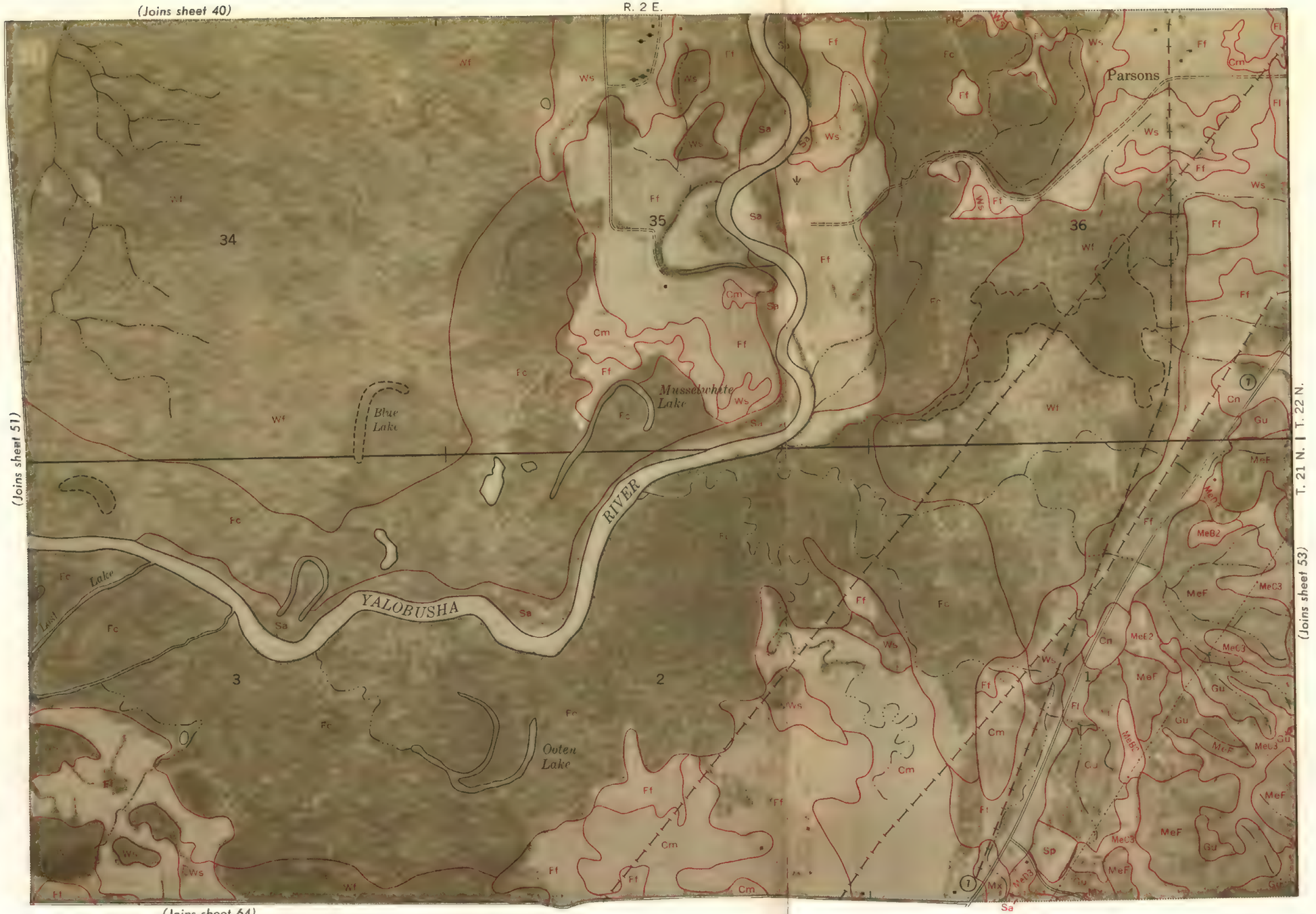
(Joins sheet 63)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 40)

R. 2 E.



(Joins sheet 51)

(Joins sheet 64)

T. 21 N. | T. 22 N.

(Joins sheet 53)

0 ½ Mile Scale 1:15 840 0 3000 Feet

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Range, township, and section corners shown on this map are indefinite.

R. 3 E.

(Joins sheet 41)

N

T. 22 N.

T. 21 N.

(Joins sheet 52)

(Joins sheet 54)

(Joins sheet 65)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 42)

R. 3 E.

(Joins sheet 53)

(Joins sheet 55)

T. 21 N. I T. 22 N.

(Joins sheet 66)

0 ½ Mile Scale 1:15 840 0 3000 Feet

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Range, township, and section corners shown on this map are indefinite.

R. 4 E.

(Joins sheet 43)

N

T. 22 N.

T. 21 N.

(Joins sheet 54)

(Joins sheet 56)

(Joins sheet 67)

Sweet Home Church

Nason

Creek

Scale 1:15 840

0 ½ Mile

0 3000 Feet

0 ½ Mile Scale 1:15 840 0 3000 Feet

Range, township, and section corners shown on this map are indefinite.

R. 5 E.

(Joins sheet 45)

N

T. 22 N.

T. 21 N.

(Joins sheet 56)

(Joins sheet 58)

(Joins sheet 69)

Wesley Chapel

Glenwild

PERRY CREEK

BYRUPAN BOGUE

ILLINOIS

UNDERGROUND

CABLE

CENTRAL

Jack Creek

31 32 33 6 5 4

0 ½ Mile

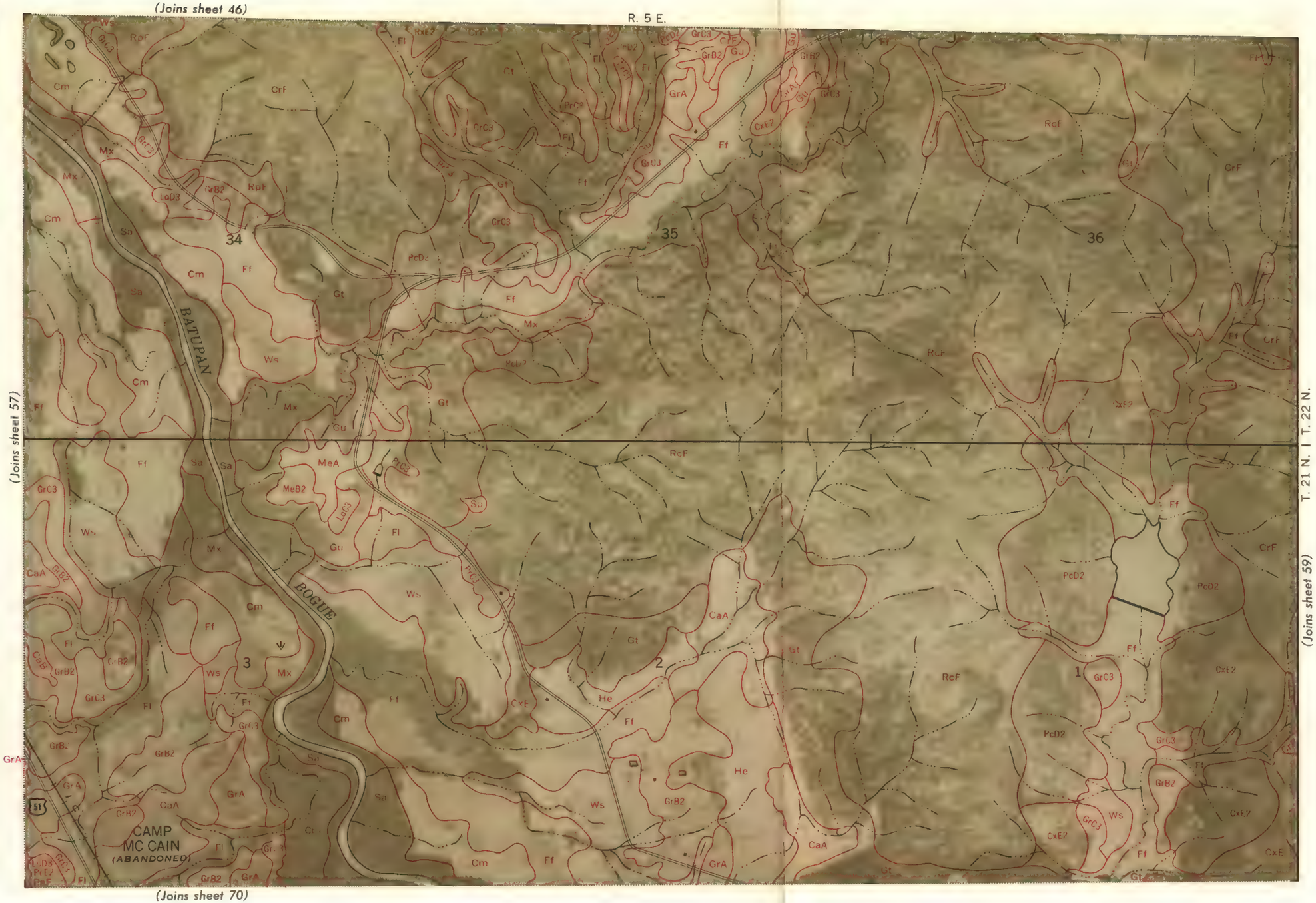
Scale 1:15 840

0 3000 Feet

N

(Joins sheet 46)

R. 5 E.



(Joins sheet 57)

(Joins sheet 59)

T. 21 N. | T. 22 N.

(Joins sheet 70)

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

R. 6 E.

(Joins sheet 47)

T. 22 N.

T. 21 N.

(Joins sheet 58)

(Joins sheet 60)

(Joins sheet 71)

31 32 33 6 5 4

Creek Creek

CrF CxF CxF2 CxE CxE2 PcD2 PrC3 PrC2 CaA CaB GrB3 GrB2 TbD2 TbF Ws Ff Gt Gu Cm Sa He

0 ½ Mile

Scale 1:15 840

0 3000 Feet

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N

(Joins sheet 48)

R. 6 E.

(Joins sheet 59)

(Joins sheet 61)

(Joins sheet 72)

0 ½ Mile Scale 1:15 840 0 3000 Feet

Range, township, and section corners shown on this map are indefinite.

0 ½ Mile Scale 1:15 840 0 3000 Feet

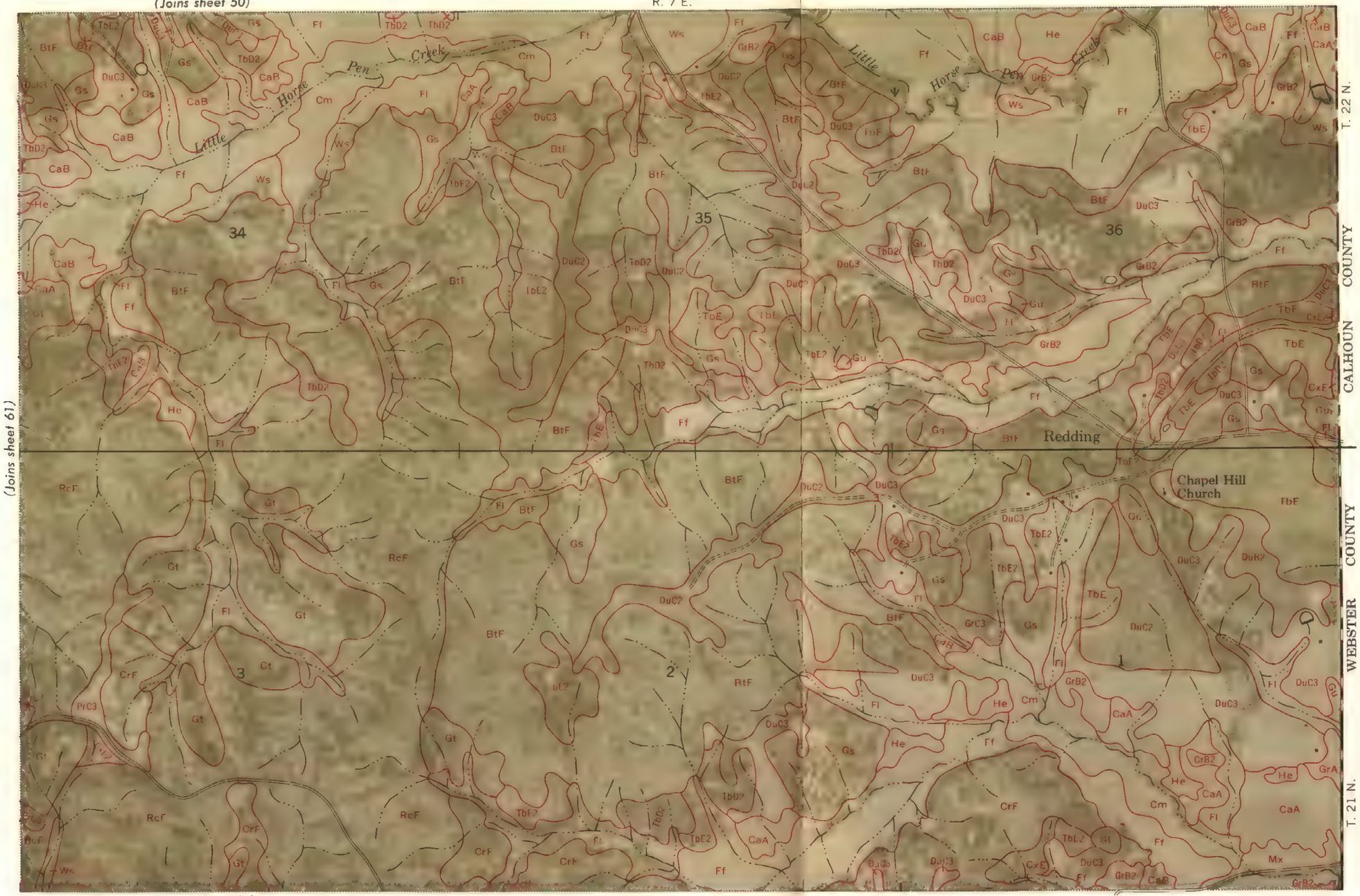
62

N

(Joins sheet 50)

R. 7 E.

(Joins sheet 61)



(Joins sheet 74)

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

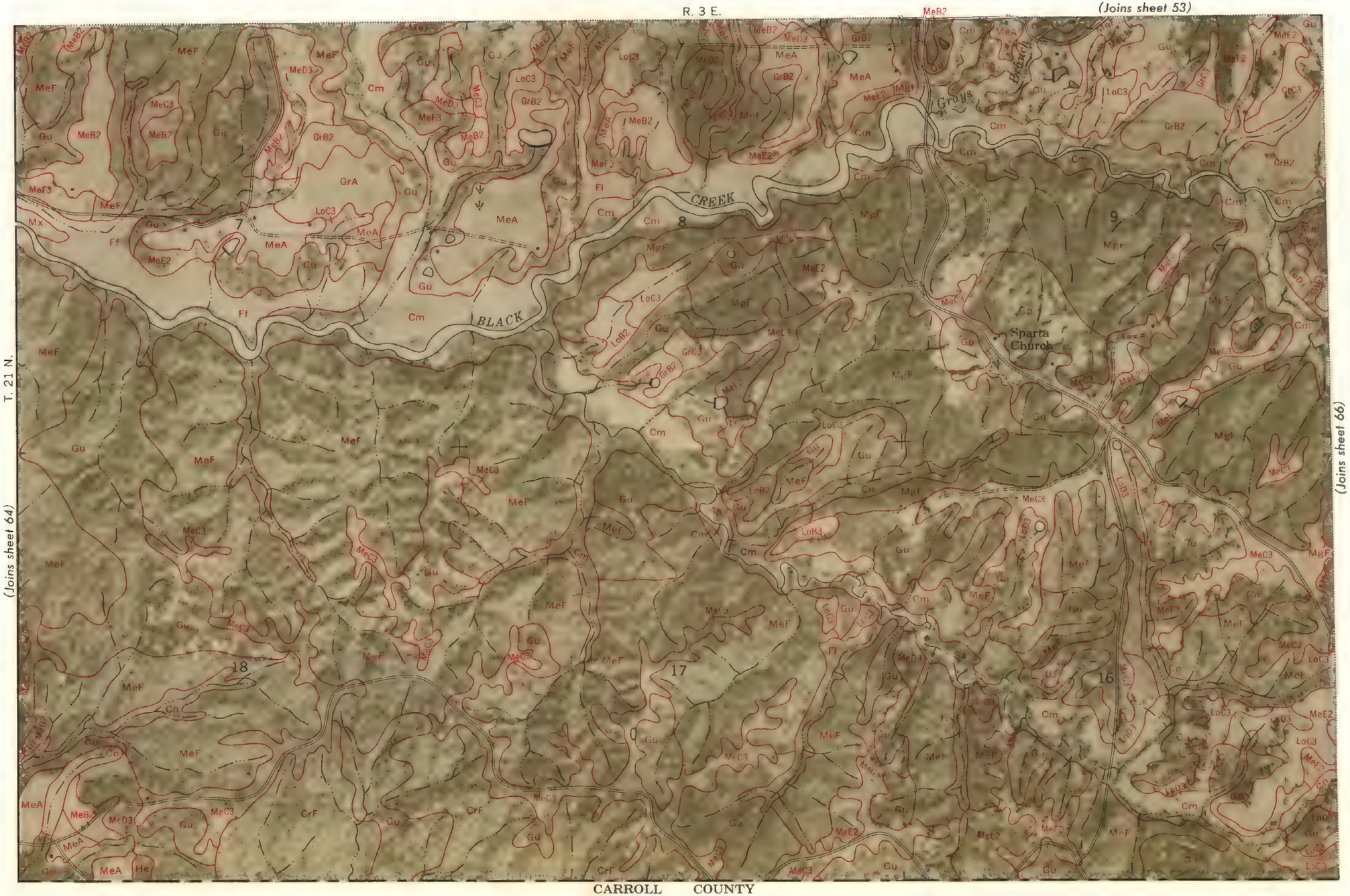
64

N

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station

Range, township, and section corners shown on this map are indefinite.



CARROLL COUNTY

66

N

(Joins sheet 54)

R. 3 E.

(Joins sheet 65)

T. 21 N.

(Joins sheet 67)

BLACK CREEK

FIRE TOWER

10 11 12 13 14 15

CARROLL COUNTY

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

N

R. 4 E.

(Joins sheet 55)

T. 21 N.

(Joins sheet 66)

(Joins sheet 68)

Coon Creek

Mt Carmel Church

CARROLL COUNTY

0 ½ Mile

Scale 1:15 840

0 3000 Feet

N

CARROLL COUNTY

0 ½ Mile Scale 1:15 840 0 3000 Feet

This map is one of a set compiled in 1965 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Mississippi Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

N

R. 5 E.

(Joins sheet 57)

T. 21 N.

(Joins sheet 68)

(Joins sheet 70)

CARROLL COUNTY

MONTGOMERY COUNTY

0 ½ Mile

Scale 1:15 840

0 3000 Feet

N

(Joins sheet 58)

R. 5 E.

(Joins sheet 69)

T. 21 N.

(Joins sheet 71)

CAMP MC CAIN
(ABANDONED)

Elliott

ILLINOIS CENTRAL

BATUPAN BOGUE

LITTLE BOGUE CREEK

BIG BOGUE CREEK

CABLE

10 11 12 13 14 15

MONTGOMERY COUNTY

0 ½ Mile Scale 1:15 840 0 3000 Feet

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Range, township, and section corners shown on this map are indefinite.

MONTGOMERY COUNTY

0 ½ Mile Scale 1:15 840 0 3000 Feet

0 ½ Mile Scale 1:15 840 0 3000 Feet

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Range, township, and section corners shown on this map are indefinite.

N

R. 7 E.

(Joins sheet 61)

T. 21 N.

(Joins sheet 72)

(Joins sheet 74)

MONTGOMERY COUNTY

0 ½ Mile Scale 1:15 840 0 3000 Feet

N

(Joins sheet 62)

R. 7 E.

T. 21 N.

(Joins sheet 73)

WEBSTER COUNTY

MONTGOMERY COUNTY

0 ½ Mile Scale 1:15 840 0 3000 Feet